

## RECORDS OF INDO-CHINESE PLANTS, III\*

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THIS paper is to a large degree based on material submitted by Dr. A. Pételot for identification. In it are recorded about forty-five species originally described from extra-limital sources, these being new records for Indo-China. Forty-three species and varieties are described as new. Certain changes are made in nomenclature for previously described species and some are reduced to synonymy. The types of the new species herein described are deposited in the herbarium of the Arnold Arboretum.

## ARACEAE

**Cryptocoryne longispatha** sp. nov. § *Bitubulosae*.

Planta ut videtur submersa, rhizoma verticali, circiter 6 mm. crassa, internodiis 2–5 mm. longis; foliis in vivo undulatis, haud bullatis sed in sicco distanter transversim subplicatis, olivaceis, membranaceis, anguste oblongo-lanceolatis, oblongo-oblanceolatis vel linear-lanceolatis, 17–22 cm. longis, 1.2–1.8 cm. latis, acutis vel leviter acuminatis, deorsum longe angustatis, basi cuneatis vel decurrentibus, costa circiter 1.5 mm. lata, nervis lateralibus utrinque 3 vel 4, angulo acutissimo a costa abeuntibus, adscendentibus, distantibus, gracilibus, obscuris, nervulis transversalibus gracilibus, obscuris, distantibus, vel subobsoletis; petiolo 8–12 cm. longo, deorsum longe vaginato; pedunculo 4–5 cm. longo; spathae tubo inferiore circiter 1.5 cm. longo, superiore 14–18 cm. longo, 3–4 mm. ampio (plano) laevi, haud transverse rugoso, lamina anguste lanceolata, 2.5–3 cm. longa, longissime anguste caudata, deorsum laxe, ad apicem subconfertim spiraliter contorta, spadicibus 1.5–2 cm. longis, stigmatibus sessilibus vel breviter stipitatis, partibus masculinis ellipsoideis, circiter 3.5 mm. longis, 2.5 mm. diametro, graciliter stipitatis, stipite 8–10 mm. longo.

INDO-CHINA, Tonkin, Thoi Nguyen Province, Phan Mê, *Pételot 2681*, Nov. 12, 1939, the plants deeply buried in the sand, along the borders of streams, the undulate leaves floating.

A species apparently belonging in the group with *Cryptocoryne retrospiralis* (Roxb.) Fisch. and *C. crispatula* Engl., the latter being the only representative of the genus hitherto recorded from Indo-China (Laos and Bien-hoa). It differs from the latter in its much broader leaves and longer peduncles. From the blanched petioles it is suspected that the lower parts of the plant were buried in the sand to a depth of up to 10 cm. The dried leaves are not, or at most very slightly bullate, and the undulate character mentioned by the collector is reflected in the dried specimens by the characteristic narrow, irregular and distant transverse plicae which at first sight simulate straight lateral nerves, the folds being so very narrow.

\*For the earlier papers in this series see Jour. Arnold Arb. **20**: 347–355, 1939; **21**: 364–391, 1940.

## LILIACEAE

**Paris Delavayi** Franch. Jour. de Bot. **12**: 190. 1898.

INDO-CHINA, Tonkin, Chapa, Pételot 6195, April 1936, humid places in forests, alt. 1500 m. Yunnan, Szechuan, and neighboring provinces in China, the type from Szechuan.

**Paris Fargesii** Franch. Jour. de Bot. **12**: 190. 1898.

INDO-CHINA, Tonkin, Chapa, Pételot 6196, April 1936, humid places in forests, alt. 1500 m. Yunnan, Szechuan, and Kweichow, the type from Yunnan.

**Paris hainanensis** Merr. Philip. Jour. Sci. **23**: 238. 1923.

INDO-CHINA, Tonkin, Chapa, Pételot 6194, April 1936, in humid places in open forests, alt. 1500 m. Hainan.

It is of interest to note that in 1934, when the Liliaceae of Indo-China was treated by Gagnepain, no representative of this genus was known from that country, but two years later Dr. Pételot collected three distinct species in the same general locality, Chapa, in northern Tonkin.

**Pleomele terniflora** (Roxb.) comb. nov.

*Dracaena terniflora* Roxb. Hort. Bengal. 24. 1814, *nomen nudum*, Fl. Ind. ed 2, **2**: 159. 1832; Kurz, For. Fl. Brit. Burma **2**: 545. 1877; Hook. f. Fl. Brit. Ind. **6**: 329. 1892.

INDO-CHINA, Tonkin, Sontoy Province, Da Chong, Pételot 2663, April 14, 1940, in shrubby savannas. Silhet and Khasia to Burma.

Baker, Jour. Bot. **11**: 263. 1873, manifestly by error, placed this as a synonym of the distinctly different *Dracaena spicata* Roxb., while Hooker f., Fl. Brit. Ind. **6**: 329. 1892, recognized Roxburgh's two species as distinct, but indicated difficulties in determining the exact status and relationships of *D. terniflora* Roxb. Pételot's material agrees rather closely with the original description and with Kurz's consideration of 1877. Roxburgh's type was from Silhet. The indicated distribution is that given by Hooker f. From Gagnepain's description of *Dracaena elliptica* Thunb., Lecomte, Fl. Gén. Indo-Chine **6**: 800. 1934, it is suspected that he included other than the typical form of that species, but his description scarcely covers the form that I here refer to Roxburgh's species.

*Pleomele* Salisbury is a very narrow generic segregate from *Dracaena* Vandelli, and few botanists have followed N. E. Brown, Kew Bull. **1914**: 273–279. 1914, in reinstating Salisbury's genus. He transferred to it, without discussion of the synonymy of the numerous species, and without literature citations, about one hundred species originally described by various authors under *Dracaena*.

## MORACEAE

**Cudrania fruticosa** Wight ex Kurz, For. Fl. Brit. Burma **2**: 434. 1877; Hook. f. Fl. Brit. Ind. **5**: 539. 1888; Schneider in Sargent, Pl. Wils. **3**: 307. 1916.

INDO-CHINA, Tonkin, Langson Province, Dong Mo, Pételot 6615, Nov. 8, 1940, a spiny shrub with scandent branches on calcareous formations. Eastern Bengal to Burma and Yunnan.

It may be that Kurz, in publishing *Cudrania fruticosa* Wight, intended to base it on *Batis fruticosa* Roxb. Fl. Ind. ed. 2, **3**: 763. 1832, but if so he failed to cite the latter. Hooker f. placed *Batis fruticosa* Roxb. as a doubt-

ful synonym; Roxburgh's description is altogether too short to judge what he may have intended to describe, but Roxburgh's species may well be the same as *Cudrania fruticosa* Wight.

**Ficus heterostyla** sp. nov. § *Covellia*.

Arbor, partibus junioribus foliis subtus et infructescientiis castaneo-hirsutis, ramulis ultimis circiter 5 mm. diametro, consperse hispido-hirsutis; foliis oppositis, 25–30 cm. longis, 10–14 cm. latis, chartaceis, oblongo-ovatis, subabrupte graciliter (2.5–3 cm.) subcaudato-acuminatis, basi aequilateralibus vel leviter inaequilateralibus, obtusis vel subrotundatis, subtrinerviis, margine dentatis, dentibus parvis, 3–5 mm. distantibus, junioribus penicillatis, supra subasperis, olivaceis, ad costam subdense in parenchymate conspersissime hispido-hirsutis, pilis plerumque castaneis rigidis 1–2 mm. longis, subtus pallidioribus, praesertim ad costam nervosque perspicue hispido-hirsutis, pilis rigidis subferrugineis vel castaneis, in parenchymate pallidioribus brevioribusque; nervis primariis utrinque circiter 8, subtus perspicuis, elevatis, circiter ad marginem arcuato-anastomosantibus, nervis secundariis subparallelis, distantibus, reticulis subdistinctis; petiolo 5–6 cm. longo, hispido-hirsuto; stipulis oblongo-lanceolatis, caudato-acuminatis, circiter 2 cm. longis, extus in partibus expositis breviter adpresse hirsutis, carinatis, ad carina longe castaneo-hirsutis; fructibus in ramis specialibus efoliatis e basi trunco ortis, ut videtur epigeis, elongatis, ramis ultimis 8–20 cm. longis, partibus vetustioribus glabris vel glabrescentibus, junioribus perspicue hispido-hirsutis, pilis rigidis, castaneis, bracteis in ramulis ultimis oppositis, oblongo-ovatis, acutis vel acuminatis, 6–8 mm. longis, extus adpresse-hirsutis, superioribus plus minusve imbricatis, internodiis in ramulis ultimis 1–4 cm. longis, in axibus primariis saltem ad 12 cm. longis, ramulis ultimis plerumque oppositis; receptaculis obovoideis, circiter 1.5 cm. longis, pedunculatis, apice rotundatis, basi subacuteis, in sicco castaneis et hispido-hirsutis, pilis castaneis, rigidis, circiter 1 mm. longis; bracteis suborbicularibus vel suborbiculari-reniformibus, rotundatis, ad 3.5 mm. longis et 4 mm. latis, extus plus minusve hirsutis, intus glabris, margine plus minusve scariosis, pedunculo 5–7 mm. longo, hispido-hirsuto; floribus ♂ paucis, 2–3 mm. longis, perianthio 0, antheris oblongo-ellipticis, 1 mm. longis; ♀ pedicellatis, pedicellis 1–2 mm. longis, glabris, perianthio 0, ovario obovoideo, leviter inaequilateraliter rotundato, circiter 1.2 mm. longo, stylis lateralibus, simplicibus, distincte hirsutis, 1 mm. longis; floribus cecidiferis ♀ simillimis sed stylis brevissimis (0.25 mm. longis) glabris.

INDO-CHINA, Tonkin, Sontoy Province, Mount Bavi, *Pételot* 2569 (TYPE), 5664, March 1936, and June 1940, in forests, alt. 400–500 m., the fruits on long branches from the base of the trunk.

It is possible that this form was included by Gagnepain in his concept of the common and widely distributed *Ficus hispida* Linn. f., and in fact, one of the cited specimens was received under that name. As *Ficus hispida* Linn. f. is described and illustrated by King, Wight, Roxburgh, and others, I am convinced that this Indo-Chinese form with elongated special apparently epigeous fruiting branches from the base of the trunk cannot be referred to the Indo-Malaysian *F. hispida* Linn. f., with relatively short inflorescences on the trunk and larger branches. This Indo-Chinese species differs also in its castaneous indumentum on the branchlets, leaves, infruc-

tescences and receptacles, as well as in its rather slenderly subcaudate-acuminate differently shaped leaves. It has in common with *Ficus hispida* Linn. f. the elongated styles of the pistillate flowers being distinctly ciliate-hirsute, while those of the gall flowers are very much shorter and entirely glabrous; this character holds for *Ficus hispida* Linn. f. and some other species of the section, such as *Ficus stolonifera* King, *F. Treubii* King, and *F. saemocarpa* Miq. As in other species of the *Covellia* group, gall flowers only occur in one set of receptacles, and staminate and fertile female flowers in others. In the currently accepted synonymy of *Ficus hispida* Linn. f., apparently *F. oppositifolia* Willd., at least as illustrated by Roxburgh, Pl. Coromandel 2: 14. t. 124. 1798 and by Wight, Ic. 2(4): 1. t. 638. 1844, and *F. daemonum* Koenig, as illustrated by Wight, op. cit. t. 641, are correctly placed. *Ficus hispida* Jacq. Hort. Schoenbr. 3: t. 315, certainly does not represent any species of the section *Covellia*.

***Ficus pubilimba* sp. nov. § *Urostigma*.**

Arbor ut videtur semi-epiphytica, ramis glabris, rugosis, ramulis ultimis hirsutis, rugosis, circiter 3 mm. diametro, stipulis caducis, terminalibus alabastrum simulantibus, oblongo-ovatis vel ovato-lanceolatis, acuminatis, coriaceis, extus hirsutis intus glabris; foliis alternis, coriaceis, integris, oblongis vel oblongo-ellipticis, 7–14 cm. longis, 3–5.5 cm. latis, in sicco pallidis, utrinque subaequaliter angustatis, basi acutis vel late acutis, breviter 3-nerviis, apice breviter late obtuseque acuminatis vel obtusis, supra glabris vel secus costam nervosque ciliato-hirsutis glabrescentibus, subtus distincte molliter pubescentibus, pilis brevibus, erectis vel patulis; nervis primariis utrinque perspicuis, subtus cum costa elevatis, circiter ad marginem arcuato-anastomosantibus, 1–2 cm. distantibus, secundariis reticulisque leviter elevatis; petiolo 1.5–3 cm. longo, pubescenti; receptaculis axillaribus, sessilibus, solitariis vel binis, globosis, glabris, 8–10 mm. diametro, bracteis 3, subreniformibus, late rotundatis, glabris vel obscure pubescentibus, circiter 2 mm. latis et 1.5 mm. longis; floribus ♂ paucis, staminibus solitariis, filamentis brevissimis, antheris suborbicularibus, 0.5 mm. diametro, perianthii segmentis 3, obovatis, subcucullatis, rotundatis, circiter 1.5 mm. longis; floribus ♀ cecidophorique, cum pedicellis, 2–3 mm. longis, sepalis 3, oblongis vel oblongo-obovatis, rotundatis, circiter 1.5 mm. longis, ovarium subglobosum involucrantibus.

INDO-CHINA, Tonkin, Bac Giang Province, near a pagoda in the environs of Kep, Pételot 5732, Feb. 27, 1936.

I have not been able to place this specimen as representing any of the Indo-Chinese species admitted by Gagnepain, nor can I place it as representing any other described species. By King's arrangement of the Indo-Malaysian species it falls in his series one, subseries four, in the general alliance with *Ficus indica* Linn., from which it is readily distinguished by its indumentum and its small subtending receptacle bracts.

PROTEACEAE

***Helicia hainanensis* Hayata, Ic. Pl. Formos. 9: 87. 1920.**

INDO-CHINA, Tonkin, Sontoy Province, Mount Bavi, Pételot 2619, July 2, 1940, a tree 7–8 m. high, in open forests, alt. 700 m. Kwangsi, Kwangtung, and Hainan.

**Helicia brevipetiolata** sp. nov.

Arbor glabra, circiter 12 m. alta, ramis teretibus, pallide viridibus, obscure longitudinaliter striatis ramulis ultimis circiter 2 mm. diametro; foliis oblongo-obovatis, firmiter chartaceis, 17–25 cm. longis, 7–10 cm. latis, acuminatis, in sicco utrinque subconcoloribus, pallide viridibus, apice acuminatis, deorsum plus minusve angustatis, basi abrupte rotundatis circiter 1–1.5 cm. latis, margine distanter subcalloso-serratis, dentibus ad 2 mm. longis, 1–3 cm. distantibus; nervis primariis utrinque 9–10, distantibus, subitus elevatis, perspicuis, curvato-arcuatis, anastomosantibus, reticulis primariis laxis, sub lente distinctis; petiolo circiter 5 mm. longo, 4 mm. crasso, transverse subplicato-rugoso; racemis in axillis superioribus, glaberrimis, breviter (2–2.5 cm.) pedunculatis, multifloris; floribus circiter 1.7 cm. longis, pedicellis circiter 3 mm. longis, deorsum per paria connatis, bracteis lanceolatis, acuminatis, vix 1 mm. longis, deciduis, bracteolis deciduis, quam bracteis duplo brevioribus; ovario glabro, anguste ovoideo, stylo 1.5 mm. longo; antheris linearis-oblengis, 3 mm. longis; disci glandulis liberis, oblongo-ovatis, circiter 0.7 mm. longis, obtusis.

INDO-CHINA, Tonkin, Sontoy Province, Mount Bavi, *Pételot* 2628, June 4, 1940, altitude about 150 m.

A species with free disk scales, falling in the group with *Helicia tonkinensis* Lecomte but totally different from that and the closely allied *H. cochin-chinensis* Lour. in its much larger, prominently toothed leaves. The short very stout petioles are transversely subplicate-rugose.

## ARISTOLOCHIACEAE

**Asarum glabrum** sp. nov.

Planta glabra, caulibus erectis, saltem 2–3-foliatis, 4–5 mm. diametro; foliis longe (10–12 cm.) petiolatis, ovatis, basi profunde cordatis, sursum angustatis et acute acuminatis, 12–21 cm. longis, 7–11 cm. latis, chartaceis, lobis basalibus rectis vel paulo divaricatis, oblongis vel ovatis, late rotundatis, 4–5 cm. longis, 3–4.5 cm. latis, nervis basalibus 3, lateralibus curvato-adscendentibus, subitus elevatis laxe subobscure reticulatis, venulis haud elevatis, additis binis in lobos basales extendentibus; floribus in axillis superioribus, solitariis, ut videtur erectis, tubo ovoideo, subfructu 3–3.5 cm. longo, ad 2.5 cm. diametro, basi late acuto vel subrotundato, lobis ovatis, obtusis vel subrotundatis, circiter 3 cm. longis et 2 cm. latis, longitudinaliter 7-nerviis, utrinque glabris, intus ad basim dense papillatis, papillis oblongis, circiter 1 mm. longis; seminibus obovoideis, 5 mm. longis; pedicellis circiter 3 cm. longis, sub fructu sursum incrassatis, curvatis; bracteis lanceolatis, acuminatis, 1.8 cm. longis, margine sursum plus minusve ciliatis.

INDO-CHINA, Sontoy Province, Mount Bavi, *Pételot* 2611, July 2, 1940, in open forests, altitude about 600 m.

A species characterized by its long petioled leaves laxly arranged on the upper parts of the stems, the leaf blade being gradually narrowed upward to the sharply acuminate apex, the broadly rounded basal lobes being parallel or only slightly diverging, as well as by being glabrous throughout except for the slightly ciliate bracts. The perianth lobes are ovate, rounded or broadly obtuse, glabrous on both surfaces, distinctly 7-nerved, and characteristically densely papillate on the base inside.

**Asarum reticulatum** sp. nov.

Glabra, rhizomate repente, radicante, caulis adscendentibus, brevibus, simplicibus vel depauperato-ramosis, ad 3 mm. diametro; foliis anguste ovatis vel late oblongo-ovatis, chartaceis, utrinque glabris, 10–15 cm. longis, 6–7 cm. latis, acutis vel breviter acute acuminatis, basi cordatis, lobis vix vel leviter patulis, ovatis, rotundatis, 2.5–3.5 cm. longis, 2.5–3 cm. latis, nervis primariis basalibus 3, perspicuis, subtus elevatis, laxe arcuato-anastomosantibus, additis binis paullo gracilioribus in lobos basales ex-tendentibus, subtus laxe perspicue reticulatis, venulis elevatis, distinctis, reticulis primariis 5–10 mm. diametro; petiolo 6.5–7 cm. longo; perianthii tubo 3–3.5 cm. longo, extus glabro, anguste campanulato, basi acuto, 1.8 cm. lato (compresso) fauce leviter constricto ut videtur depresso, lobis late ovatis, rotundatis, circiter 2 cm. longis latisque, utrinque glabris, basi intus subtransverse verruculosis, pedicellis circiter 2 cm. longis; bracteolis lanceo-latis, acuminatis, circiter 1.5 cm. longis, saltem ad marginem plus minusve ciliato-hirsutis.

INDO-CHINA, Tonkin, Chapa, *Pételot* 2554, April 1935, in mossy humus, open forests, altitude about 1500 m.

In general characterized by being glabrous throughout, the leaves prominently and laxly reticulate beneath, the perianth about 4 cm. wide, the lower half of the lobes inside transversely verruculose, the lobes broadly ovate or orbicular-ovate, rounded, and about 2 cm. in diameter.

Lecomte, Fl. Gén. Indo-Chine 5: 53. 1910, admitted a single species of this genus from Indo-China, *Asarum Balansae* Franch., type from Mount Bavi; this species is also represented by *Pételot* 2555 from the type locality. O. C. Schmidt, Notizbl. Bot. Gart. Berlin 11: 100. 1931, recorded *Asarum caudigerum* Hance from Tonkin and described *A. Petelotii* O. C. Schmidt from Tam Dao, Tonkin, based on *Pételot* 3891. With the description of the above two new species the total number now known from Indo-China is five.

## POLYGONACEAE

**Polygonum macranthum** Meisn. in DC. Prodr. 14: 107. 1856.

INDO-CHINA, Tonkin, Sontoy Province, Mount Bavi, *Pételot* 6601, Nov. 1, 1940, in humid places, alt. 700 m. Northern India, western and central China, and Japan.

**Polygonum Thunbergii** Sieb. & Zucc. Fl. Jap. Fan. Nat. 2: 84. 1846; Steward, Contr. Gray Herb. 5(88): 83. 1930, cum syn.

INDO-CHINA, Tonkin, Chapa, *Pételot* 1622, July 1924, alt. 1500 m. Assam, through China to Sakhalin, Japan and Formosa, southward to Sumatra.

Danser, Bull. Jard. Bot. Buitenz. III. 8: 224. f. 14. 1927, accepted the binomial *Polygonum hastatotrilobum* Meisn. (1865) for this species, which Steward, op. cit. 84 places as *P. Thunbergii* Sieb. & Zucc. var. *hastatotrilobum* (Meisn.) Maxim. Steward cites Pételot's number, having seen the specimen in the University of California herbarium.

**Polygonum praetermissum** Hook. f. Fl. Brit. Ind. 5: 47. 1886; Steward, Contr. Gray Herb. 5(88): 86. 1930.

INDO-CHINA, Tonkin, Balyn pagoda, near Hanoi, *Pételot* 791, Nov. 1922. India and Ceylon to Japan, southward to Luzon, but as yet not recorded from the Malay Archipelago.

The leaves of the cited specimen are twice as large as Steward admits for Hooker's species, yet I believe that the material is properly placed under *Polygonum praetermissum* Hook. f.

**Rumex nepalensis** Spreng. Syst. 2: 159. 1825; Meisn. in DC. Prodr. 14(1): 55. 1856; Wight, Ic. 5(2): 8. t. 1810. 1852; Hook. f. Fl. Brit. Ind. 6: 60. 1886.

INDO-CHINA, Tonkin, Chapa, *Pételot* 2549, August 1940, along roads, altitude about 1500 m. Northern India to western and central China.

The cited specimen agrees very closely with a large series of Yunnan collections, but *Pételot* 2549 and most of the Yunnan material differ from Sprengel's species as currently described, and as illustrated by Wight, in the unbranched inflorescences and in the lower leaves being rounded rather than cordate.

#### ANNONACEAE

##### **Artobotrys Petelotii** sp. nov.

Frutex scandens partibus junioribus et foliis subtus plus minusve pubescentibus, ramis teretibus, glabris vel subglabris, ramulis ultimis 1.5–2 mm. diametro, dense breviter pubescentibus; foliis chartaceis, plerumque oblongis vel oblongo-ellipticis, aliquando deorsum leviter angustatis, 9–14 cm. longis, 3–5.5 cm. latis, obtuse acuminatis, basi late acutis, supra nitidis, glabris vel secus costam breviter pubescentibus, in sicco pallidis, subtus subopacis praesertim secus costam nervosque consperse molliter breviter pubescentibus; nervis primariis utrinque 9–12, distantibus, curvatis, subtus elevatis, perspicuis, arcuato-anastomosantibus; inflorescentiis oppositifoliis, uncatis, ligneis, pubescentibus, 1-floris; floribus flavidis, pedicellis circiter 8 mm. longis, pubescentibus, sursum incrassatis; sepalis ovatis, acuminatis, 4.5–5 mm. longis, coriaceis, extus pubescentibus, intus subglabris vel leviter pubescentibus; petalis crassissime coriaceis, utrinque dense breviter subcinereo-pubescentibus, exterioribus 2 cm. longis, oblongo-lanceolatis, obtusis, planis, 6 mm. latis, basi cupulatis, intus glabris, petalis interioribus minoribus, subteretibus vel leviter compressis, ad 2 mm. crassis, rectis vel leviter curvatis, partibus basalibus planis, intus glabris, extus ad basin partibus liberis distincte subauriculatis; staminibus numerosis, 2 mm. longis, deorsum angustatis, connectivo circiter 1 mm. diametro, subtruncato-convexo; carpellis circiter 6, oblongo-ovoideis, densissime adpresso hirsutis; stylis crassis, 1 mm. longis, glabris, subteretibus.

INDO-CHINA, Tonkin, Bac Giang Province, near Pho Vi, *Pételot* 4857, June 1933, a large vine with yellow flowers, in forests.

The alliance of this species is clearly with *Artobotrys uniflorus* (Griff.) Craib, Kew Bull. 435. 1915, described and well illustrated by King, Ann. Bot. Gard. Calcutta 4: 47. t. 62. 1893 as *A. burmanicus* (non A. DC.!), one of the few species in this alliance that has densely hirsute ovaries. It differs in its somewhat smaller flowers, relatively broader outer petals and relatively narrower, almost terete, inner ones, and its bluntly, rather than acutely acuminate leaves, the main nerves interarching once within the margins, not twice as in Griffith's species. Gagnepain gives a very brief description of *A. burmanicus* A. DC. on the basis of *Pierre* 104 from Siam, a fruiting specimen, giving its range as "Toute la Presqu'ile Malaise." Ridley does not admit the species in his Flora of the Malay Peninsula, and

Craib, Fl. Siam. Enum. I: 33. 1925, states that Gagnepain's description does not apply to *Artobotrys burmanicus* A. DC., but that it suggests *A. siamensis* Miq., and does not admit the former as definitely occurring in Siam. *A. burmanicus* A. DC. is a species quite distinct from *A. uniflorus* (Griff.) Craib.

**Desmos monogynus** sp. nov.

Frutex 5–6 m. altus, perspicue subcastaneo-villosus, ramis vetustioribus glabris, ramulis dense villosis, circiter 2 mm. diametro; foliis oblongis, chartaceis, 11–17 cm. longis, 3.5–6 cm. latis, in sicco supra pallidis, glabris, subtus subcastaneo-brunneis, praesertim secus costam nervosque dense villosis, apice breviter acuminatis, basi rotundatis et minute cordatis; nervis primariis utrinque 13–15, supra haud distinctis, subtus elevatis, perspicuis, circiter ad marginem arcuato-anastomosantibus; petiolo dense villoso, crasso, 3–4 mm. longo; floribus axillaribus, solitariis, brevissime pedicellatis; sepalis triangulari-ovatis, obtusis, circiter 6 mm. longis et 5 mm. latis, intus glabris, extus adpresso hirsutis, margine ciliatis; petalis lanceolatis circiter 3 cm. longis, extus adpresso villosis, intus glabris, exterioribus 8 mm., interioribus 10 mm. latis, sursum angustatis, obtusis; staminibus numerosis, cuneatis, 2 mm. longis, connectivo obliquo, truncato, cellulis extrorsis; carpellis solitariis, oblongis, 3 mm. longis, plus minusve compressis, adpresso hirsutis, sursum leviter angustatis; stigmatibus sessilibus, depresso-globosis, leviter hirsutis; ovulis 2-seriatis, numerosis; fructibus dense subcastaneo-pubescentibus, ad 6 cm. longis et 2 cm. diametro, seminibus 2, inter se leviter constrictis.

INDO-CHINA, Tonkin, Sontoy Province, Mount Bavi, Pételot 2597, Aug. 28, 1940, in open humid forests, alt. 200 m.

This species is somewhat anomalous in the Annonaceae in its monocarpellate flowers, although occasionally one finds species in various genera with single carpels, and is likewise anomalous within the genus *Desmos* Lour. (*Unona* auctt. non Linn.) not only in this character but also in its sessile depressed-globose, somewhat hairy stigmas, and much thickened fruits which are only slightly constricted between the two seeds. While it seems probable that ultimately it may be desirable to establish a new genus for this rather striking form, in view of the slight amount of material available (a single flower dissected) it seems best to place it in *Desmos* for the present. It is not closely allied to any previously described species in this group.

**Fissistigma villosissimum** sp. nov.

Frutex ut videtur scandens, ramulis et floribus et subtus foliis densissime molliter villosis; ramis teretibus, vetustioribus subatris, lenticellatis, glabris vel glabrescentibus, ramulis circiter 2 mm. diametro, densissime ferrugineo-vel subcinereo-villosis; foliis coriaceis, oblongis vel oblongo-ellipticis, 10–16 cm. longis, 3.5–6 cm. latis; brevissime subabrupte acute acuminatis basi late rotundatis vel leviter cordatis, supra laevibus, olivaceis, subnitidis, glabris vel junioribus secus costam perspicue ferrugineo-pubescentibus, subtus densissime uniformiter villosis, pilis elongatis, subadpressis, ferrugineis vel radio-ferrugineis; nervis primariis utrinque circiter 20, supra gracilibus, haud impressis, subtus elevatis, perspicuis, rectis vel leviter curvatis, ad

marginem distinete curvatis sed vix anastomosantibus; petiolo 6–10 mm. longo, densissime villoso vel vetustiori glabrescenti; floribus solitariis vel binis, in axillis superioribus, subsessilibus, circiter 2 cm. longis; sepalis liberis vel subliberis, oblongo-ovatis, crasse coriaceis, intus verruculosis, glabris, extus densissime badio-villosis, 10–12 mm. longis, deorsum 7 mm. latis, sursum angustatis, acutis; petalis crasse coriaceis, exterioribus oblongo-ovatis, 2 cm. longis, 1 cm. latis, sursum angustatis, obtusis, intus verruculosis, glabris vel sursum ad marginem cinereo-puberulis, extus densissime longe subadpresso subbadio-villosis, petalis interioribus oblongo-lanceolatis, 1.5 cm. longis et 7 mm. latis, crassissime coriaceis, sursum angustatis, obtusis, extus in partibus medianis adpresso puberulis ceteroquin glabris, intus ad basim excavatis, verruculosis, sursum crassissimis, valvatis; staminibus numerosis, 2–2.4 mm. longis, plus minusve oblanceolatis, cellulis contiguis, connectivo ovoideo, acuto vel obtuso, 0.8–1 mm. longo, quam partibus celluliferis latioribus; carpellis circiter 20, cum stylis 3.5–4 mm. longis, ovario oblongo, densissime adpresso subferrugineo-villoso, pilis 1–2 mm. longis; stylis glabris oblongis, crassis, 1.5 mm. longis, truncatis vel subtruncatis interdum minute denticulatis, stigmatibus haud distinctis, glabris; ovulis circiter 8, 2-seriatis.

INDO-CHINA, Tonkin, Thoi Nguyen Province, Phan Mê, Petelot 2683, Nov. 12, 1939.

The alliance of this species is clearly with the Hainan-Tonkin *Fissistigma Maclarei* Merr. (*Melodorum Maclarei* Ast) and ***F. villosum*** (Ast) comb. nov. (*Melodorum villosum* Ast in Lecomte, Fl. Gén. Indo-Chine Suppl. I: 110, 1938), the latter based on a single *Poilane* collection from Blao, Annam. It differs from the former notably in its sessile or nearly sessile flowers, more numerous primary nerves, longer petioles, and shortly acuminate, not obtuse leaves, and from the latter in its larger leaves, much more copious ferruginous indumentum, and larger flowers, being apparently more closely allied to the latter than to the former.

#### MYRISTICACEAE

##### ***Knema Petelotii*** sp. nov.

Arbor parva, ramis ramulisque teretibus, ramis glabris vel subglabris, ramulis ultimis circiter 1.5 mm. diametro, obscure longitudinaliter striatis, subdense breviter substellato-subfurfuraceis, pallide brunneis; foliis firmiter membranaceis vel chartaceis, oblongis vel oblongo-oblanceolatis, 9–22 cm. longis, 2.5–5.5 cm. latis, distinete acute acuminatis, basi late acutis, supra glabris, in sicco olivaceis, opacis vel subnitidis, nervulis et reticulis ultimis gracilibus sed manifestis, leviter elevatis, subtus glaucis praesertim secus costam nervosque minute substellato-subfurfuraceis glabrescentibus; nervis primariis utrinque 12–18, subtus elevatis, perspicuis, secus marginem arcuato-anastomosantibus; petiolo 5–10 mm. longo, dense breviter subgranuloso-pubescente; inflorescentiis 3 axillaribus, solitariis, umbellatis, 3–5-floris, pedunculis 3–5 mm. longis, cum pedicellis 5–6 mm. longis dense breviter pallide brunneo-pubescentibus, indumento substellato vel substellato-subfurfuraceo; bracteolis in partibus  $\frac{2}{3}$  vel  $\frac{3}{4}$  superioribus subreniformibus, late rotundatis, circiter 1 mm. longis; perianthio 5–6 mm. longo, inaperto 3–4 mm. diametro, extus dense breviter pubescente, tubo circiter 3 mm. longo, intus glabro, lobis 3, late ovatis, tubo aequantibus, subobtusis vel late acutis, intus glabris; alabastro obovoideo, androphoro

3 mm. longo, glabro, stipite sursum leviter incrassato, apicem cum antheris circiter 2 mm. diametro, convexo; antheris 10, sessilibus, 1 mm. longis.

INDO-CHINA, Tonkin, Sontoy Province, Mount Bavi, *Pételot* 6608, in open humid forests.

This is clearly distinct from any of the five species admitted by Lecomte as occurring in Indo-China. It is characterized by its relatively thin leaves which are glaucous beneath, its short substellate-subfurfuraceous indumentum on the inflorescences and younger parts, and by its few-flowered, simple staminate umbels. In accordance with Warburg's arrangement of the species it apparently belongs in the group with *Knema Pierrei* Warb. which has much larger, more numerously nerved leaves.

#### HERNANDIACEAE

##### **Illigera Petelotii** sp. nov. § *Appendiculatae*?

Frutex scandens, plus minusve pubescens, caulis in sicco subcastaneis, longitudinaliter sulcatis, leviter pubescentibus glabrescentibus, ramulis ultimis teretibus, 1.5–2 mm. diametro, parce pubescentibus; foliis 3-foliolatis, petiolo 7–9 cm. longo, leviter pubescenti, axillis plerumque alabastra ferrugineo-pubescentia gerentibus; foliolis subcoriaceis vel junioribus submembranaceis, ellipticis anguste ovato-ellipticis vel leviter obovato-ellipticis, breviter obtuse acuminatis, basi leviter cordatis, 8–12 cm. longis, 5–7 cm. latis, supra glabris vel ad costam nervosque breviter pubescentibus, in sicco olivaceo-brunneis, subnitidis, subtus paullo pallidioribus, breviter molliusque subconsperte pubescentibus, nervis lateralibus utrinque 4, curvato-adscendentibus, arcuato-anastomosantibus, subtus distinctis, elevatis, reticulis primariis gracilibus, distinctis; petiolulis breviter pubescentibus, 1.2–1.5 cm. longis; inflorescentiis terminalibus, laxis, amplis, ad 25 cm. longis, ramis paucis, 10–15 cm. longis, breviter pubescentibus; floribus (ut videtur paucis) ignotis, bracteis oblongo-ellipticis, utrinque pubescentibus, 2–3 mm. longis; fructibus maturis (cum alis) 4–5 cm. latis, 2.5 cm. longis, apice distincte retusis, leviter pubescentibus, late bialatis et inter alas latiores anguste bicarinatis, alis latissime rotundatis, glabris vel subglabris.

INDO-CHINA, Bac Giang Province, between Kep and Pho Vi, *Pételot* 2476, February 27, 1936, borders of the forest.

Although the flowers of this species are as yet unknown, it is suspected that it belongs in Dunn's section *Appendiculatae* because of its general resemblance to *Illigera Pierrei* Gagnep. It differs from Gagnepain's species, of which an isotype is available, in its leaves being softly pubescent beneath, those of *I. Pierrei* Gagnep. being glabrous except for the indumentum in the axils and along the midrib below on the lower surface, the differences in the fruits being even more striking. In *Pierre 1950, 1956* from Baochiang and Mokay, Bienhoa Province, the fruit wings are 3 to 4 cm. long and 2 to 3.5 cm. wide, and elliptic in outline; in *Pételot 2476* they are suborbicular and 2.5 cm. long and wide.

##### **Illigera mollissima** W. W. Sm. Notes Bot. Gard. Edinb. **10:** 42. 1917.

*Illigera cordata* Dunn, Jour. Linn. Soc. Bot. **38:** 296. 1908. pro minore parte, *quoad Hancock* 538 et "foliolis suborbicularibus — ubique molliter pubescentibus."

Dunn's species was based on two different entities, *Hancock* 538 clearly

being the same as *Illigera mollissima* W. W. Sm.; the three Henry numbers cited by him are retained as representing *I. cordata* Dunn as apparently Dr. Smith interpreted Dunn's species from the Henry material when he described *Illigera mollissima* W. W. Sm. Any other interpretation would involve the acceptance of *Illigera cordata* Dunn as appertaining to the species with softly pubescent suborbicular leaves, the reduction of *I. mollissima* W. W. Sm. to synonymy, and the description of Henry 9902, 9902A, 10649 (specimens of all of which are before me) as a new species. *Illigera mollissima* W. W. Sm., as thus interpreted, is represented in the herbarium of the Arnold Arboretum by the following specimens: Szechuan, Forrest 21403; Yunnan, Delavay 3600 and two sheets s.n. (distributed as *I. cordata* Dunn), R. C. Ching 20217, April 25, 1939.

***Illigera cordata*** Dunn, Jour. Linn. Soc. Bot. **38**: 296. 1908.

To "save" this name, as explained above, and to "save" *Illigera mollissima* W. W. Sm., I restrict Dunn's species to the cited Henry specimens, 9902, 9902A, 10649, referring Hancock 538 to *Illigera mollissima* W. W. Sm. The species, as thus restricted is further represented by Maire s.n. from Yunnan and Wilson 4091 from "western China." To be eliminated from the original description "foliolis suborbicularibus - - - ubique molliter pubescentibus"; the leaflets are ovate to oblong-ovate, acuminate, slightly but distinctly cordate, sparingly short-pubescent becoming subglabrous, and on the three Henry specimens examined are but 5 to 8 cm. long. The mature fruits on Henry 9902 are 2 cm. long and 3 to 3.5 cm. wide (including the wings) and the description of *Illigera cordata* Dunn should thus be changed from "fructus - - - 3-5 cm. latus" to "3-3.5 cm. latus."

***Illigera yaoshanensis*** Hao, Repert. Sp. Nov. **42**: 84. 1937.

This species, described from fruiting specimens from Kwangsi (*Sin* 1536, 3536) and Hainan (Henry 8564), should be compared with *Illigera platyandra* Dunn, as it seems, from the description, to be very similar to the latter rather than to *I. mollissima* W. W. Smith, to which it was compared. In the description "petiolis 10-20 mm. longis" must be an error for the petiolules. I think that *Tsang* 23288 from Tou Ngok Shan, Kwangsi, near the Kwangtung border, represents Hao's species, and if so, then it would seem to be clear that his species should be reduced to *I. platyandra* Dunn.

CAPPARIDACEAE

***Capparis Petelotii*** sp. nov.

Frutex glaber, circiter 2.5 m. altus, inermis (saltem in partibus superioribus), ramis teretibus, ultimis circiter 3 mm. diametro; foliis chartaceis, oblongo-ellipticis, 20-35 cm. longis, 7-12 cm. latis, basi rotundatis vel late acutis, apice apiculato-acuminatis, in sicco pallide viridibus, supra nitidis, subtus paullo pallidioribus; nervis primariis utrinque circiter 12, distantibus, curvatis, subtus valde perspicuis, elevatis, arcuato-anastomosantibus, secundariis reticulisque primariis laxis elevatis perspicuis; petiolo circiter 1.5 cm. longo; floribus supra-axillaribus, plerumque 4, 1-seriatim dispositis, pedicellis glabris, sursum plus minusve incrassatis, ad 1.8 cm. longis; sepalis lanceolatis vel elliptico-lanceolatis, acuminatis, circiter 12 mm. longis et

4 mm. latis, extus glabris, intus minutissime puberulis; petalis late oblanceolatis, circiter 2 cm. longis et 6–7 mm. latis, rotundatis vel obtusis, extus glabris, intus purpureis et deorsum obscure pubescentibus; filamentis glabris, ad 3 cm. longis, filiformibus; antheris oblongis, 2 mm. longis; gynophoro glabro, 3 cm. longo; ovario oblongo-ovoideo, glabro, 3 mm. longo, placentis 4, ovulis numerosis; stylo crasso, 1 mm. longo, stigmate 1 mm. diametro.

INDO-CHINA, Tonkin, Sontoy Province, Mount Bavi, *Pételot 2618*, July 2, 1940, a shrub about 2.5 m. high, alt. 600 m.

A species in the group with *C. horrida* Linn. and *C. micracantha* DC., characterized by the flowers being superimposed in a line above the axils, and in this group most closely allied to *Capparis donnaiensis* Pierre, from which it differs in its much larger, thinner leaves, somewhat fewer lateral nerves, larger flowers and nearly glabrous petals and sepals, these being only obscurely and shortly pubescent within, quite glabrous outside.

***Capparis yunnanensis*** Craib & W. W. Sm. Notes Bot. Gard. Edinb. **9**: 91. 1916.

INDO-CHINA, Tonkin, Chapa, *Pételot 5951*, April 1936, a large liana along mountain streams, alt. 1200 m. Yunnan.

When first studied, this was indicated by me as an undescribed species, and although it differs slightly from *Henry 12986*, the type of the species, in its shorter inflorescences, I am now convinced that the Chapa material should be referred to this Yunnan form.

#### SAXIFRAGACEAE

***Hydrangea indochinensis*** sp. nov. § *Euhydrangea, Petalanthae.*

Frutex, inflorescentiis exceptis glaber vel subglaber; ramis teretibus, glabris, laevibus, in sicco subatro-viridibus, junioribus brunneis, ultimis circiter 1 mm. diametro; foliis lanceolatis vel oblongo-lanceolatis, 7–11 cm. longis, 2–3 cm. latis, graciliter acuminatis, basi acutis vel cuneatis, submembranaceis, in sicco supra olivaceis, subtus pallidioribus, utrinque glabris vel junioribus subtus obscure conspersissime breviter pubescentibus, margine plerumque revolutis, obscure subcalloso-denticulatis vel deorsum integris, dentibus minutis, 1–3 mm. distantibus; nervis primariis utrinque circiter 7, gracilibus, distinctis, curvato-adscendentibus, circiter ad marginem obscure arcuato-anastomosantibus; petiolo glabro, 1–2 cm. longo; inflorescentiis terminalibus, pedunculatis, breviter, subadpresso substrigoso-hirsutis, pedunculo circiter 4 cm. longo, ramis primariis pedunculum subaequantibus, subpatulis, sub fructu (sine radiis sterilibus) ad 9 cm. latis, pedicellis 3–5 mm. longis; capsulis ovoideis, circiter 4 mm. longis, additis stylis persistentibus 3–5 (plerumque 4) 2–2.5 mm. longis, extus leviter 8-costatis, subrefractis, glabris vel praesertim deorsum conspersissime subadpresso hirsutis, in vivo ut videtur subazureis; calycis lobis persistentibus 5, oblongis, obtusis, suberectis, 0.5 mm. longis; ovario sub fructu plane infero vel apici leviter protruso; seminibus pallidis, oblongo-ellipsoideis, utrinque subattenuatis, utrinque subacutis vel apice subacuminatis, vix vel obscure alatis, longitudinaliter striatis, circiter 1 mm. longis; radiis sterilibus circiter 5, elongatis, ad 5 cm. longis sub medio saepe flores 1–3 fertiles ferentibus; floribus sterilibus sub fructu 4-meris, albidis, circiter 4 cm. diametro, sepalis suborbiculari-ovatis vel suborbiculari-ovatibus, integris,

rotundatis, basi late acutis, chartaceis vel submembranaceis, 1.5–2 cm. longis, 1.2–1.8 cm. latis, subperspicue longitudinaliter 7-costatis, reticulatis, utrinque, praesertim deorsum, secus nervos conspersissime breviter hirsutis.

INDO-CHINA, Tonkin, Chapa, Massif de Fan Tsi Pan, *Pételot* 2687, July 1940, in humid ravines, alt. 2200 m.

This is the second species of the genus to be recorded from Indo-China. It is characterized by its thin leaves, by being entirely glabrous except the inflorescences, by its inferior ovaries, apparently somewhat nodding capsules, and greatly elongated sterile rays, each bearing a single sterile flower, and about half way along the peduncle 1 to 3 fertile flowers. In spite of its distinctly superior ovaries, it clearly belongs in the group with *Hydrangea chinensis* Maxim., and its closest described ally may be *Hydrangea kwangsiensis* Hu, Jour. Arnold Arb. **12**: 152. 1931, Ic. Pl. Sin. **3**: 35. t. 135. 1933.

#### ROSACEAE

##### **Pygeum affine** sp. nov. § *Cylopygeum*.

Species *P. ciliato* Koehne simillima et affinis, differt foliis tenuioribus, glandulis basalibus nullis vel, si praesentibus, planis, obscurissimis, nullo modo marsupialibus, nervis reticulisque supra haud impressis, antheris vix 0.5 mm. longis. Arbor circiter 12 m. alta, ramis teretibus, subatris, consperse lenticellatis, glabris vel junioribus decidue subferrugineo-pubescentibus, ramulis ultimis dense subferrugineo-villosis, circiter 1.5 mm. diametro; foliis chartaceis, ellipticis vel late oblongo-ellipticis, 11–16 cm. longis, 5–7.5 cm. latis, breviter subobtuse acuminatis, basi plerumque rotundatis, in sicco brunneis vel pallide olivaceo-brunneis, subtus pallidioribus, supra ad costam nervosque subferrugineo-pubescentibus, ceteroquin glabris vel in parenchymate pilos paucos breves conspersissimos ferentibus, subtus ad costam nervosque sat conspicue breviter ferrugineo-pubescentibus, in parenchymate conspersissime pubescentibus glabrescentibus, margine planis vel minute revolutis si revolutis minute multiseriatim breviter ciliatis; nervis primariis utrinque 8–9, supra planis, subtus elevatis, perspicuis, arcuato-anastomosantibus, reticulis primariis gracilibus, distinctis, leviter elevatis; petiolo dense ferrugineo-pubescenti, 6–10 mm. longo; stipulis caducis (haud visis); inflorescentiis dense ferrugineo-pubescentibus, racemis 3–5-fasciculatis, vel rarer paniculatis, 4–6 cm. longis, plerumque in axillis defoliatis in ramis annotinis; pedicellis 1.5–3 mm. longis, bracteolis oblanceolatis, 1.5 mm. longis, extus dense pubescentibus, intus glabris, caducis; calycibus subcupulatis, extus ferrugineo-pubescentibus, intus, basi exceptis, glabris, deorsum plus minusve angustatis, 3 mm. longis, segmentis 10, 5 (sepalis), triangulari-ovatis, acutis, pubescentibus, 1 mm. longis, 5 alternis (petalis) aequilongis, anguste obovatis, obtusis vel rotundatis; staminibus circiter 30, filamentis glabris, 1.5–3 mm. longis; antheris 0.5 mm. longis; ovario ovoideo, circiter 1.2 mm. longo, deorsum ferrugineo-villoso, sursum pilos sparsos ferente; stylis 2.5–3 mm. longis; fructibus ignotis.

INDO-CHINA, Tonkin, Chapa, *Pételot* 6160 (TYPE), 6161, August 1930 and August 1935, in forests, alt. about 1500 m.

The alliance of this species is clear, but Koehne's sections are in part based on very slight characters. The only other described species, *Pygeum ciliatum* Koehne, to which this might be closely allied is *Pygeum arboreum*

"Kurz" (accorded by Kurz to Endlicher), but as Koehne notes, this specific name cannot be retained as it was based on *Polydonta arborea* Blume (see Jour. As. Soc. Bengal **45**(2): 303. 1876) and Blume's species was based on a mixture, including *Pygeum latifolium* Miq., *P. griseum* Blume, *P. parviflorum* Teysm. & Binn., and *P. Blumei* Koehne, as interpreted by Koehne. In *Pygeum affine* Merr. the basal glands are usually absent, or if present, then a single one, and this obscure and plane, not at all saccate. The inflorescences are mostly racemes, but occasionally there are one or two lateral branches as much as 2.5 cm. long.

**Pygeum brachybotrys** sp. nov. § *Cylopygeum* ?

Arbor, ramis teretibus, in sicco nigris, glabris, conspersissime lenticellatis, ramulis junioribus circiter 1.5 mm. diametro, dense breviter ferrugineo-pubescentibus; foliis chartaceo-coriaceis, oblongo-ovatis, integris, 5–7 cm. longis, 3–3.5 cm. latis, breviter acute acuminatis, basi late acutis vel subrotundatis, margine obscurissime revolutis, breviter ciliatis, supra olivaceis, glabris, nitidis vel junioribus opacis et praesertim secus costam plus minusve pubescentibus, subtus brunneis, uniformiter subadpresso breviter villosis, glandulis basalibus nullis, vel cum adsint singularibus subtus tantum manifestis, subconcavis haud saccatis, circiter 1 mm. diametro; nervis primariis utrinque 7, supra (in foliis vetustioribus) cum reticulis leviter impressis, subtus elevatis, perspicuis, curvato-adscendentibus, haud vel secus marginem obscurissime arcuato-anastomosantibus; petiolo 5–7 mm. longo, breviter villoso vel vetustis glabro; stipulis caducis (haud visis); inflorescentiis brevibus, ferrugineo-villosis, 1–2 cm. longis, racemis 3–5-fasciculatis, in axillis defoliatis (in ramis annotinis) rarer in axillis foliorum, bracteolis non visis; floribus breviter (1–1.5 mm.) pedicellatis vel alabastris sessilibus vel subsessilibus; calycis tubo cupulato, 2 mm. longo, extus subferrugineo-pubescenti, segmentis 10, omnibus simillimis, 0.5–0.8 mm. longis, pubescentibus, obtusis vel subacutis; staminibus circiter 20, filamentis glabris, 1–2.5 mm. longis; antheris vix 0.5 mm. longis; ovario glaberrimo, oblongo-ovoideo, circiter 1 mm. longo; stylis glabris, 1.3–2 mm. longis; fructibus ignotis.

INDO-CHINA, Tonkin, Xoan Dao, Pho Ba Che, *Pételot* 4029 (TYPE).

A species characterized by its small leaves, the basal glands normally absent, but if present, then a single one clearly evident on the lower surface and slightly concave but not at all saccate, and its unusually short inflorescences and small flowers. While I have tentatively placed it in the section *Cylopygeum* I am by no means convinced that it belongs here, but in the absence of fruits nothing further can be done with it at present. With the description of these two new species the total number of Indo-China species is now five.

LEGUMINOSAE

**Apis carnea** (Wall.) Benth. ex Baker in Hook. f. Fl. Brit. Ind. **2**: 188. 1876; Gagnepain in Lecomte, Fl. Gén. Indo-Chine **2**: 421. f. 40, 6–8. 1916; Hand.-Maz. Symb. Sin. **7**: 579. 1933; Chun, Sunyatsenia **4**: 217. 1940.

*Cyrtotropis carnea* Wall. Pl. As. Rar. **1**: 50. t. 62. 1830.

INDO-CHINA, Tonkin, Chapa, *Pételot* 2470, Aug. 1940, a large liana, alt. 1500 m. India to Siam, Yunnan, and fide Chun, in Kwangtung.

The only reason for recording this here is that although Gagnepain described it, *l.c.*, he had seen no Indo-Chinese specimens, admitting the species because it occurs in Siam. The Chinese *Aplos macrantha* Oliv. Hook. Ic. **20**: *t. 1946*, 1890, originally described from Szechuan, is allied but is apparently distinct.

**Desmodium triangulare** (Retz.) comb. nov.

*Hedysarum triangulare* Retz. Obs. **3**: 40. 1783.

*Hedysarum cephalotes* Roxb. Hort. Beng. 57. 1814, *nomen nudum*, Fl. Ind. ed. 2, **3**: 360. 1832.

*Desmodium cephalotes* Loud. Hort. Brit. 310. 1830, *nomen nudum*, Wall. List no. 5721. 1832; Gagnep. in Lecomte, Fl. Gén. Indo-Chine **2**: 573. 1920.

*Dendrolobium triangulare* Schindl. Repert. Sp. Nov. **20**: 279. 1824.

Retzius' specific name is the oldest one for this widely distributed Asiatic species, whether it be retained in *Desmodium* or placed in the generic segregate *Dendrolobium* where Schindler disposes of it.

**Bauhinia bracteata** Grah. ex Baker in Hook. f. Fl. Brit. Ind. **2**: 282. 1878; Craib, Fl. Siam. Enum. **1**: 517. 1928; Gagnep. in Lecomte, Fl. Gén. Indo-Chine **2**: 149. 1913.

*Bauhinia unguiculata* Baker, op. cit. 277; Gagnep. op. cit. 150.

*Bauhinia Harmandiana* Pierre ex Gagnep. Not. Syst. **2**: 172. 1912; Lecomte, Fl. Gén. Indo-Chine **2**: 128. 1913.

Craig's investigation of the confusion that has existed in reference to the status of *Bauhinia bracteata* Grah., *B. Helferi* Craig, and *B. unguiculata* Baker results in the reduction of the Indo-Chinese list of *Bauhinia* by two species; see his note, Kew Bull. **1924**: 93. 1924, sub *B. Helferi* Craig, *in nota*. Siam and Indo-China.

**Bauhinia coccinea** (Lour.) DC. Prodr. **2**: 516. 1825; Merr. Trans. Am. Philos. Soc. II. **24**(2): 188. 1935.

*Phanera coccinea* Lour. Fl. Cochinch. 37. 1790, ed. 2, 47. 1793; Moore, Jour. Bot. **63**: 247. 1925.

INDO-CHINA, Annam, Mount Bana, Clemens 4254, May-July 1927, a great liana covering the highest trees with a mass of unusually large brilliant red flowers.

This is a most remarkable species with unusually large flowers, about 13 cm. in diameter, entirely different from any of the forms admitted by Gagnepain, but an Indo-Chinese species overlooked by him, falling in his section I (ovaries pubescent, *not glabrous*). The conspicuous lateral appendages to the claws of the standard are more or less lacerate and up to 1 cm. long along the upper  $\frac{1}{2}$  to  $\frac{2}{3}$  of the claw. The long stipitate ovaries and the styles are densely appressed pubescent with short, shining brownish-red hairs. The sepals are linear-lanceolate or narrowly strap shaped, 3–3.5 cm. long, 3 mm. wide, sharply acute or slightly acuminate, appressed pubescent outside. The calyx tube, in bud, is 1.5 cm. long, 2–3 mm. wide, slightly sulcate, pubescent, the bud excluding the tube, cylindric, 3 cm. long, about 8 mm. in diameter. This most striking species is the type of the subgenus *Phanera* and is at present known only from the original collection made in the latter part of the eighteenth century and the Clemens collection of 1927.

**Bauhinia tenuiflora** Watt ex C. B. Clarke, Jour. Linn. Soc. Bot. **25**: 18. *t. 6*. 1889.

*Bauhinia caterviflora* Chen, Jour. Arnold Arb. **19**: 129. 1938, Lingnan Sci. Jour. **18**: 479. 1939; Merr. Jour. Arnold Arb. **21**: 368. 1940.

Chen's species was credited to Indo-China in 1940 on the basis of *Pételot* 2165 from Chapa, but it has since transpired that *B. caterviflora* Chen is identical with the much older *B. tenuiflora* Watt, originally described from Munne pore. The species extends from Burma to Siam, northern Indo-China, and Yunnan.

***Bauhinia carcinophylla* sp. nov. § *Phanera*.**

Frutex scandens, ramulis petiolis inflorescentiis et foliis subtus perspicue subadpresso castaneo- vel rubiginoso-subferrugineo-pubescentibus, vel in foliis vetustioribus indumento pallide cinereis, ramis teretibus, laevibus, glabris, ramulis ultimis circiter 2 mm. diametro, dense subadpresso villosis; foliis fere ad basim fissis vel lobis tota liberis, coriaceis, basi distincte cordatis, 10–12-nerviis, supra glabris, olivaceis vel atro-olivaceis, minute subdense reticulatis, subtus uniformiter breviter subadpresso pubescentibus, lobis vel foliolis 6–10 cm. longis, 2.5–4 cm. latis, omnino liberis vel deorsum breviter (2–6 mm.) connatis, inaequilateraliter oblongis, fere semilunaribus, obtuse acuminatis, falcatis, leviter incurvatis, apices saepe attingentibus vel imbricatis; petiolo 1.5–5 cm. longo, dense villoso; inflorescentiis terminalibus, dense subrubiginoso-villosis, brevibus, simpliciter racemosis, haud corymbosis, 6–8 cm. longis, ad 5–6 cm. latis, axibus abbreviatis (2–5 cm. longis), floribus plus minusve confertis; pedicellis 1–1.5 cm. longis, bracteis lanceolatis, acuminatis, 5 mm. longis, bracteolis ad basim calycis tubi linearibus, 4–5 mm. longis, deciduis; calycis tubo cylindraceo, circiter 6 mm. longo, 3.5 mm. diametro, basi acuto, cum lobis extus dense adpresso subrubiginoso-villoso, lobis 5, reflexis, oblongis vel oblongo-ellipticis, acuminatis, intus glabris, circiter 1 cm. longis et 4 mm. latis; petalis vix unguiculatis sed deorsum angustatis, obovatis vel oblongo-obovatis, rotundatis, basi acutis, intus glabris, extus dense adpresso subrubiginoso- vel ferrugineo-villosis, ad 1.8 cm. longis et 1 cm. latis; staminibus fertilibus 3, filamentis sursum glabris, deorsum villosis, circiter 12 mm. longis; antheris oblongis, 5 mm. longis; ovario oblanceolato, circiter 8 cm. longo, dense ferrugineo-villoso, stylo ad 15 mm. longo, deorsum plus minusve subadpresso villoso supra medium glabro; leguminibus (valde immaturis) dense villosis.

INDO-CHINA, Tonkin, Tsai Wong Mo Shan and Sai Wong Mo Shan (Sai Vong Mo Leng), in the extreme northeastern part of Indo-China just south of the juncture of the Kwangtung-Kwangsi-Tonkin boundaries, *W. T. Tsang* 29033 (TYPE), 29878, May 11–20, 1939, and May-Dec. 1940, in thickets, flowers white, fragrant.

This is a remarkably distinct species, falling in Gagnepain's section I (ovaries pubescent, *not glabrous*, as indicated by him in his key), but differing from all of the 21 species placed by him in this group by the leaves being divided almost or quite to the base, the sinuses normally very narrow, the somewhat incurved apical parts of the lobes or leaflets often touching or overlapping, somewhat suggesting the claws of a crab. The short, crowded, simple racemes are also characteristic, for most of the species in this group have corymbose inflorescences. The apical parts of the buds are ellipsoid and about 1 cm. long, exceeding the calyx tubes in length.

***Bauhinia Clemensorum* sp. nov. § *Phanera*.**

Frutex scandens, ramulis inflorescentiis et petiolis et foliis subtus insigniter rubiginoso-villosis, ramis vetustioribus glabrescentibus; foliis subcoriaceis, integris, breviter petiolatis, ovatis, 5–7 cm. longis, 3.5–7.5 cm. latis,

basi late rotundatis vel leviter cordatis, 9-nerviis, apice late rotundatis plerumque brevissime apiculatis, supra in sicco subcastaneo-olivaceis, parcissime villosis glabrescentibus, subtus rubiginosis atque perspicue rubiginoso-villosis, nervis elevatis, distinctis; petiolo dense rubiginoso-villoso, 8–10 mm. longo; cirrhis circiter 5 cm. longis, dense rubiginoso-vilosus; inflorescentiis stricte racemosis, racemis solitariis vel binis, 6–10 cm. longis, dense rubiginoso-vilosus, breviter pedunculatis, pedicellis post anthesin persistentiibus numerosissimis, confertis, 1.2–1.5 cm. longis, sub fructu plerumque deciduis, rhachibus nunc cicatrices ca. 3 mm. diametro elevatas perspicuas ferentibus; bracteis linearifiliformibus, 6–8 mm. longis, pedicellis binis bracteolas simillimas supra medium ferentibus; calycis tubo cylindrico vel subcompresso circiter 2 cm. longo, 1.5–2 mm. lato, dense adpresso pubescenti; calycis lobis 5, liberis, reflexis, oblongo-lanceolatis, acuminatis, 7 mm. longis, 3 mm. latis, intus glabris, extus dense rubiginoso-pubescentibus; petalis suborbicularibus, roseis, utrinque late rotundatis vel apice plus minusve retusis, haud unguiculatis, intus glabris, extus praesertim in partibus medianis parce rubiginoso-vilosus, pilis adpressis; staminibus fertilibus 3; antheris oblongo-ellipsoideis, 3 mm. longis; staminodeis 7, glabris, 2.5–3 mm. longis; ovario glabro, in alabastro sessili demum distincte stipitato; fructibus glaberrimis, planis, castaneis, nitidis, glabris, leviter reticulatis, rectis vel leviter curvatis, loriformibus, 4–4.5 cm. latis, 20 cm. longis, pedicellis cum stipitibus 5 cm. longis.

INDO-CHINA, Annam, general vicinity of Hué and of Tourane, *J. & M. S. Clemens* 3621 (TYPE), 3229, July 3 (flower) Aug. 3 (fruit) 1927, a luxuriant vine along forest margins, flowers pink-red.

A remarkably distinct species, falling in Gagnepain's group II (ovaries *glabrous*, not pubescent, in this group), but entirely different from the other species in this assemblage. Striking characters, other than its rubiginous indumentum, are its entire, not lobed leaves, short petioles, dense racemes, the few racemes not arranged in panicles, the pedicels persisting for a time after the flowers fall, but when the fruits are mature nearly all the pedicels have fallen, leaving very prominent projecting scars on the somewhat thickened rachis.

***Bauhinia melanophylla* sp. nov. § *Phanera*.**

Frutex scandens, ut videtur altus, ramis glabris, teretibus, in sicco atris, junioribus parcissime pubescentibus glabrescentibus; foliis membranaceo-chartaceis, in sicco atris, utrinque nitidis, in ambitu suborbicularibus, 7–12 cm. longis latisque, basi perspicue cordatis, 11-nerviis, lobis late rotundatis, apice breviter lobatis, lobis 2–2.5 cm. longis e basi latissimis sursum angustatis, acute acuminatis, supra glabris, subtus ad basim parce adpresso ciliatis glabrescentibus; petiolo 3.5–5 cm. longo, parcissime adpresso-hirsuto glabrescenti; inflorescentiis terminalibus racemis circiter 6 elongatis pedunculatis paniculam formantibus, pedunculis 7–9 cm. longis, glabris vel glabrescentibus, cirrhis ad 10 cm. longis, partibus floriferis 10–20 cm. longis, subdense adpresso sordide cinereo-pubescentibus, pedicellis circiter 1 cm. longis, dense adpresso pubescentibus, vel superioribus (alabastris) brevioribus, bracteis lanceolatis, acuminatis, 3–4 mm. longis, bracteolis vix 1 mm. longis; floribus sub anthesin 3–3.5 cm. diametro, alabastris obovoideis, late rotundatis, dense, breviter, sordide adpresso-pubescentibus; calycibus in-

aequilateralibus, subfalcatis, tubo extus dense breviter pubescenti, obscure sulcato, basi acuto, 5–7 cm. longo, sursum circiter 5 mm. diametro, limbo sub anthesin patulo vel subpatulo, 1 cm. diametro, lobis 5, plus minusve inaequalibus, lobis late ovatis, apice rotundatis, intus glabris, 2.3–3 mm. longis et 3.5–4 mm. latis; petalis unguiculatis, utrinque sordide breviter cinereo-pubescentibus, limbis ellipticis vel obovatis, late rotundatis, basi acutis vel late acutis, 10–11 cm. longis, 7–9 mm. latis, unguiculis 3–6 mm. longis et 1–2 mm. latis; staminibus fertilibus 3, filamentis glabris, 1.5–2 cm. longis, staminodeis plerumque 6, plus minusve connatis, glabris, 3–4 lanceolatis e basi leviter incrassatis, 2–3 majoribus, e basi valde incrassatis ovoideis vel obovoideis, interdum inaequilateralibus, apice abrupte contractis, filaments sterilia ad 2 mm. longa ferentibus; ovario breviter unguiculato, anguste oblongo, densissime pubescente, sub anthesin 1 cm. longo et 3 mm. lato, stylis glabris, ovarium aequantibus.

INDO-CHINA, Tonkin, Hoa Bin Province, Muong Thon, route from Hanoi to Hoa Bin, *Pételot* 2664, April 21, 1940, along small streams.

This species is strongly characterized by its elongated racemes forming a terminal panicle, the younger parts of the inflorescences densely and shortly subcinereous-pubescent, the older parts glabrous or nearly so, the inequilateral, somewhat falcate calyx-tubes, the petals densely pubescent on both surfaces, the peculiar staminodes, several with greatly thickened bases and all more or less connate, and the rather thin shortly-lobed, in general orbicular, cordate leaves which are glabrous, black and shining on both surfaces when dry. It falls in Gagnepain's group I (with pubescent, *not glabrous*, ovaries), but is not closely allied to any of the twenty-one species placed by him in this assemblage.

#### MELIACEAE

##### **Dysoxylum Gobara** (Ham.) comb. nov.

*Guarea Gobara* Ham. Trans. Wern. Soc. **6**: 306. *f.* 1832.

*Guarea procera* Wall. List no. 1261. 1829, *nomen nudum*.

*Dysoxylum procerum* Hiern in Hook. f. Fl. Brit. Ind. **1**: 547. 1875; C. DC. Monog.

Phan. **1**: 486. 1878; Pellegr. in Lecomte, Fl. Gén. Indo-Chine **1**: 744. *f.* 81, 6–11. 1911, excl. syn. Blume.

*Guarea disyphonia* Griff. Not. **4**: 503. 1854, Ic. **4**: *t.* 585, *f.* 1. 1854.

*Hartighsea Gobara* Wight & Arn. ex Voigt, Hort. Suburb. Calcut. 136. 1845, *nomen nudum*.

INDO-CHINA, Tonkin, Sontoy Province, Mount Bavi, *Pételot* 6581, 6603, Oct. and Nov. 1940, in open forests, alt. 700–800 m. Assam and Khasia to Thailand, Burma, and Yunnan.

Craib has already noted, Fl. Siam. Enum. **1**: 252. 1926, that if *D. procerum* Hiern is really the same as *Guarea Gobara* Ham. the specific name should be changed. After an examination of Hamilton's description and his figure of the fruit, I see no reason to consider that he had other than the species long known as *Dysoxylum procerum* Hiern. Although C. de Candolle gives the range of the species to Java (var. *integrum*), I am convinced, after examining an actual specimen of *Dysoxylum excelsum* Blume, named by Blume, that Pitard erred in citing de Candolle's variety as a synonym of *D. procerum* Hiern. Craib notes that *D. turbinatum* King of the Malay Peninsula is a very closely allied species.

## BUXACEAE

**Buxus pubifolia** sp. nov.

Frutex circiter 5.2 m. altus, ramulis petiolis et foliis subtus, praesertim secus costam, breviter molliterque pubescentibus, ramis glabris, teretibus vel obscure sulcatis, subpallidis, ramulis ultimis 1–1.2 mm. diametro, teretibus vel sulcatis; foliis brevissime petiolatis, subchartaceis, ellipticis vel oblongo-ellipticis, 6–10 cm. longis, 2.5–5 cm. latis, acutis, basi late acutis, supra glabris, in sicco subolivaceis, opacis vel leviter nitidis, subtus pallidioribus, nervis primariis 3–5 mm. distantibus, utrinque circiter 17, gracilis, 1–1.5 mm. longo; inflorescentiis ♂ axillaribus terminalibusque, subsessili- bus, subglomeratis, densis, circiter 6 mm. longis, rhachibus dense pubescentibus paullo productis, bracteis ovatis, acute acuminatis, glabris vel subglabris, 1.5–2 mm. longis; pedicellis ad 1 mm. longis, leviter pubescentibus; floribus masculis confertis, 4-meris, sepalis binis exterioribus obscure carinatis, quam interioribus paullo minoribus, interioribus late elliptico-ovatis vel suborbiculari-ovatis, late rotundatis, leviter cucullatis, glabris, circiter 1.5 mm. longis et 1.3 mm. latis; filamentis glabris, 2–3 mm. longis, pistilloidiis subtruncatis, circiter 1.2 mm. diametro, irregulariter sulcatis; floribus ♀ fructibusque ignotis.

INDO-CHINA, Annam, Province of Quang Binh, My Duc, *Pételot* 6017, July 1930, a shrub 5.2 m. high, in open forests at the base of calcareous formations.

A species characterized by its medium sized, relatively thin leaves, which are densely and softly short-pubescent beneath especially along the midribs, the same type of indumentum being present on the slender branchlets and on the short petioles. The staminate inflorescences are reduced to dense glomerules about 6 mm. in diameter.

## CELASTRACEAE

**Microtropis rhynchocarpa** sp. nov. § *Ramiflorae*.

Frutex glaber, ramis teretibus, ramulis ultimis (novellis) circiter 2 mm. diametro, brunneis, sursum plus minusve compressis canaliculatisque; foliis oblongo-ellipticis vel anguste oblongo-ovatis, 15–20 cm. longis, 5–8 cm. latis, chartaceis, in sicco laevibus, haud verruculosis, supra subolivaceis, subtus brunneis, deorsum angustatis, basi acutis, apice subabrupte breviter (1 cm.) obtuse acuminatis; nervis primariis utrinque 7–9, subadscendentibus, distantibus, subtus elevatis, gracilibus sed perspicuis, laxe arcuato-anastomosantibus, reticulis primariis secundariisque laxis, vix perspicuis; petiolo 1 cm. longo; floribus ignotis; fructibus in ramis vetustioribus in axillis defoliatis fasciculatis; sepalis persistentibus 5, late ovatis, subacute, circiter 2 mm. longis; fructibus anguste ovoideis, cum rostro 2 cm. longis, 8–9 mm. diametro, extus brunneo-maculatis haud furfuraceis, sursum angustatis, subabrupte conspicue rostratis, rostris deorsum ad 2 mm. sursum circiter 1 mm. crassis, 7–8 mm. longis; pedicellis incrassatis, 2–3 mm. longis, rugosis.

INDO-CHINA, Tonkin, Sontoy Province, Mount Bavi, *Pételot* 6607, Nov. 1, 1940, in open humid forests, altitude about 150 m.

A species characterized by its fairly ample, acuminate, slenderly but distinctly nerved, rather thin leaves, and especially by its fascicled prominently rostrate fruits which are borne in the axils of fallen leaves on the

older leafless branches. It is not closely allied to any of the species placed in the series *Ramiflorae* by myself and Miss Freeman, in our treatment of the known species of the genus, Proc. Am. Acad. Sci. Arts **73**: 271–310. 1940 (Mem. Gray Herb. **5**: 271–310).

#### ICACINACEAE

**Gomphandra Chingiana** (Hand.-Maz.) Sleumer, Notizbl. Bot. Gart. Berlin **15**: 238. 1940.

*Stemonurus Chingianus* Hand.-Maz. Sinensis **2**: 3. 1931; Hu, Ic. Pl. Sin. **3**: 44. t. 144. 1933.

INDO-CHINA, Tonkin, Chapa, *Pételet* 5450, 6360, April 1935 and April 1938, in open forests, alt. about 1500 m.

When first studied, this material was placed with *Gomphandra oppositifolia* Pierre, where it cannot possibly belong, and later with *G. hainanensis* Merr. The specimens seem clearly to represent Handel-Mazzetti's species, the type of which was from Kwangsi. *Ching* 8262 from Seh-feng Dar Shan, south of Nanning, Kweichow, distributed as *Schoepfia chinensis* Gardn. & Champ., is a fruiting specimen of this species, the fruits being up to 2 cm. in length and 8 mm. in diameter, oblong-ellipsoid, or sometimes slightly narrowed below. I suspect that certain Yunnan specimens should be referred to this species, including *Henry* 10492 (in fruit) and *Tsai* 55405, 60577, 60583, 61669, 62138. Handel-Mazzetti's species is allied to *Gomphandra hainanensis* Merr., but is apparently distinct.

**Gomphandra mollis** sp. nov.

Frutex vel arbor parva, foliis subtus dense breviter molliterque pubescentibus; ramis ramulisque teretibus, breviter pubescentibus, ramulis ultimis 1.5–2 mm. diametro; foliis oblongis, chartaceis vel junioribus submembranaceis, 13–20 cm. longis, 4.5–6.5 cm. latis, perspicue subabrupteque acuminatis, acuminibus acutis vel subobtusis, ad 1.5 cm. longis, basi late acutis vel subrotundatis, supra in sicco subatris vel atro-olivaceis, subnitidis, glabris vel junioribus ad costam impressam obscure breviter pubescentibus, subtus paullo pallidioribus, dense breviter molliterque pubescentibus; nervis primariis utrinque 8–10, supra haud perspicuis, subtus elevatis, distinctis, subadscendentibus, circiter ad marginem obscure vel haud arcuato-anastomosantibus, reticulis primariis laxis, inconspicuis; petiolo 10–12 mm. longo, dense breviter pubescenti; inflorescentiis oppositifoliis, pedunculatis, 4–5 cm. longis (pedunculo 1.5–2 cm. longo), breviter pubescentibus, ramis primariis plerumque 4, pedunculum terminantibus, subverticillatim dispositis, 1–1.5 cm. longis; floribus numerosis in ramulis ultimis subcapitatum dispositis, plus minusve confertis; floribus ♂ 5-meris, 4.5–5 mm. longis, brevissime pedicellatis vel subsessilibus; calycibus late cupulatis, circiter 1 mm. diametro, vix 0.5 mm. altis, truncatis vel obscurissime 5-denticulatis, margine obscure ciliatis; calycis tubo 3 mm. longo, glabro, lobis ovatis vel ovato-lanceolatis, 1–1.5 mm. longis, acuminatis, acuminibus inflexis; filamentis 4–5 mm. longis, planis, sursum circiter 1 mm. latis, deorsum angustatis, in partibus inferioribus ( $\frac{1}{2}$ – $\frac{2}{3}$ ) glabris, supra intus barbatis, pilis flaccidis, pellucidis, 1–1.5 mm. longis, apicibus leviter subclavatis; antheris ellipsoideis, 0.7–1 mm. longis; ovarii rudimento glabro, subconico, circiter 1 mm. longo.

INDO-CHINA, Tonkin, Sontoy Province, Da Chong, *Pételot* 2658, 7949 (TYPE), May 7, 1936 and May 4, 1940. CHINA, Yunnan, Ping-pien Hsien, *Tsai* 60361, June 20, 1934, in ravines, altitude about 1100 m.

*Gomphandra mollis* Merr. is well characterized by its indumentum and its subcapitately arranged flowers on the four radiating branches of the leaf-opposed inflorescence. When first examined the material was referred to *Gomphandra oppositifolia* Pierre (*Stemonurus oppositifolius* Howard, Jour. Arnold Arb. 21: 469. 1940), where it certainly does not belong. Pierre's type, a fruiting specimen, the flowers still unknown, was from Bien-hoa, near Saigon, in southern Indo-China.

***Gomphandra Petelotii* sp. nov.**

Arbor circiter 8 m. alta, glabra, vel partibus novellis inflorescentiisque plus minusve breviter pubescentibus, ramis teretibus, glabris, ramulis ultimis circiter 1 mm. diametro; foliis oblongis, oblongo-ellipticis vel late oblongo-lanceolatis, subchartaceis, in sicco atris, subtus paullo pallidioribus, 5–9 cm. longis, 2–3 cm. latis, breviter subobtuse acuminatis, basi late acutis vel subrotundatis; nervis primariis utrinque circiter 6, supra obscuris vel obsoletis, subtus haud perspicuis, circiter ad marginem obscure arcuato-anastomosantibus, reticulis obsoletis; petiolo 5–7 mm. longo, glabro; inflorescentiis terminalibus et in axillis superioribus, subcymosis, obscure pubescentibus glabrescentibus, 1.5–2 cm. longis, ad 2 cm. latis, pedunculatis, pedunculo 5–8 mm. longo, apice subradiatim 4-ramoso, ramis pedunculum subaequantibus, patulis, floribus in ramulis ultimis paucis, subcymosim dispositis, subsessilibus vel breviter pedicellatis, pedicellis 1–2 mm. longis; floribus ♂ 4–5-meris, 3.5–4 mm. longis, glabris; calycibus late cupulatis, circiter 1 mm. diametro, 0.5–0.7 mm. altis, obscure 4–5-denticulatis; corollae tubo 2.5 mm. longo, lobis 4–5, ovatis, circiter 1.5 mm. longis, graciliter acuminatis, acuminibus inflexis; staminibus plerumque 5, filamentis planis, circiter 3 mm. longis, sursum 0.5 mm. latis, deorsum angustatis, infra medio glabris, supra medio intus barbatis, pilis pellucidis, flaccidis, apicibus plus minusve clavatis, superioribus antheros excedentibus; antheris ellipsoideis, 0.8 mm. longis; ovarii rudimento glabro, subconico, acuto, 1 mm. longo, floribus ♀ fructibusque ignotis.

INDO-CHINA, Sontoy Province, Mount Bavi, *Pételot* 2647, May 18, 1940, in open forests, alt. about 500 m.

A species characterized by its short, radiately 4-branched, terminal and axillary inflorescences and its relatively small obscurely nerved leaves, the reticulations obsolete or subobsolete, the few flowers cymosely disposed on the ultimate branches of the inflorescence. Its general alliance is with the Chinese *Gomphandra Chingiana* (Hand.-Maz.) Sleumer.

In retaining *Gomphandra* Wallich as a valid genus distinct from *Stemonurus* Blume, I follow Koorders & Valeton, *Bijdr. Boomsoort. Java* 5: 144–151. 1900 (Meded. Lands Plant. 23: 144–151). In describing the genus, Blume, *Bijdr.* 643. 1825, included four species, *S. pauciflorus* Bl., *S. secundiflorus* Bl. and *S. javanicus* Bl. which he placed in his section one (unnamed), and *S. frutescens* Bl. which he placed in his section *Anacolosa*. He indicated no type. *Stemonurus frutescens* Bl. is eliminated from consideration, as in *Mus. Bot. Lugd.-Bat.* 1: 250–251. 1850 he raised this section to generic rank, the type being *Anacolosa frutescens* (Blume) Blume.

Engler, Nat. Pflanzenfam. **3**(5): 247. 1893, retained *Stemonurus* Blume as a valid genus with *Gomphandra* Wall. and *Medusanthera* Seem. as synonyms, but indicated no type of Blume's genus; at the same time he placed *Stemonurus in part* (as to *S. secundiflorus* Blume) as a synonym of *Urandra* Thwaites. It should be noted that when Blume again considered his genus *Stemonurus*, Mus. Bot. Lugd.-Bat. **1**: 249–250. 1850, he somewhat amplified his generic description, and in this amplification he very definitely includes specific characters of *Stemonurus secundiflorus* Blume, yet for some unexplained reason he did not include this species in his text, although it is the only representative of the group that he figured, op. cit. f. 45. It might be argued that Blume intended to restrict his genus *Stemonurus* to its *Gomphandra* characters; yet even here he indicated no type for his genus, and we still have three of the original species from which to select the type. The international code provides that any author treating a genus may designate the type species, and this Koorders and Valeton very definitely did in 1900 thus: "Genus *Stemonurus* Bl. cuius species typica *S. secundiflorus* a Blume in Tab. XLV Mus. Bot. optime delineata est, species alias non-nullas generice diversas et ad *Gomphandram* Wall. referendas includit. Hoc autem jam a Beccari et Valeton bene demonstrandum est et nullam habet rationem. (ut fecit Engler in Nat. Pfl.) nomen *Stemonurus* pro *Gomphandra* et *Urandra* Thw. (jam ab auctore ipso demissum, Thw. enum.) in *Stemonuri* locum substituere." Even earlier than this Beccari, Malesia **1**: 111–116. 1877 had restricted *Stemonurus* Blume to that group of species having the general characters of *Stemonurus secundiflorus* Blume, among Blume's species considering and describing only this one, but adding several others; he thus eliminated all of the other species placed by Blume under *Stemonurus* and this very elimination leaves *S. secundiflorus* Blume as the type of the genus. Valeton, Crit. Overzigt Olac. 234–237. 1886, followed Beccari's interpretation. Sleumer, Notizbl. Bot. Gart. Berlin **15**: 238. 1940, in transferring *Stemonurus Chingianus* Hand.-Maz. to *Gomphandra*, conforms to this interpretation of Blume's genus. Howard, on the other hand, Jour. Arnold Arb. **21**: 461–471. 1940, discussed the case at length and reached entirely different conclusions. He recognized *Urandra* Thwaites to include *Stemonurus secundiflorus* Blume, *Gomphandra* Wallich to take various other species described under *Stemonurus*, and *Medusanthera* Seem. to take still others. He calls attention to the differences in Blume's amplified generic description of 1850 as compared with the original of 1825 and notes particularly that in this amplified description he lists specific characters of *Stemonurus secundiflorus* Blume, the species being one of those on which the original generic description was based. Here I would interpret Blume's action as slightly modifying his original description and making it even more applicable to the *Stemonurus secundiflorus* complex, as well as selecting this species for his detailed illustration of the genus as evidence that he considered this to be particularly typical of his genus *Stemonurus*; however, this can be considered as evidence only, not proof. The fact that Beccari, Valeton, and Koorders and Valeton successively and specifically selected *Stemonurus secundiflorus* Blume as the type

of the genus in their interpretation of *Stemonurus* Blume is all that is needed to typify the genus, and to stabilize the name *Stemonurus*. The International Code recommends that if an author has revised a genus and if he has designated a type as Beccari did, followed by Valeton, and by Koorders and Valeton, this choice should stand except for very special reasons; and there seems to be no special reason for abandonment of Beccari's conclusions and those of other authors who have followed him. The retention of *Stemonurus* Blume as thus interpreted by Beccari and others will result in much fewer changes in names than would otherwise be the case. Under the circumstances I do not accept Howard's conclusions, and here retain *Gomphandra* Wallich. *Stemonurus* Blume is also retained for a group of species in the *S. secundiflorus* complex with *Urandra* Thwaites as a synonym.

## SABIACEAE

**Meliosma coriacea** sp. nov. § *Simplices*.

Species *M. sterrophyllae* Merr. affinis, differt nervis lateralibus paucioribus, floribus in ramulis ultimis glomerato-spicatum dispositis. Arbor circiter 8 m. alta, inflorescentiis exceptis glabro; ramulis ultimis circiter 4 mm. diametro; foliis simplicibus, oblongo-ellipticis, integris, coriaceis, 12–18 cm. longis, 6–7 cm. latis, obtuse acuminatis, basi acutis vel subdecurrenter cuneatis, in sicco supra castaneis, subtus pallide brunneis, utrinque subnitidis; nervis primariis utrinque circiter 8, supra subobscuris, subtus valde elevatis, perspicuis, curvatis, circiter ad marginem arcuato-anastomosantibus, reticulis distinctis; petiolo glabro, 2.5–3.5 cm. longo; paniculis erectis, multifloris, terminalibus et ex axillis defoliatis, pedunculatis, 12–20 cm. longis, partibus vetustioribus parce, junioribus subdense breviter subadpresso pallide subferrugineo-hirsutis, ramis primariis distantibus, longioribus ad 6 cm. longis; floribus numerosis, in ramulis ultimis subglomerato-spicatum confertis, sessilibus vel ultimis breviter pedicellatis, bracteolis suborbiculari-ovatis, rotundatis, 0.8 mm. longis, margine brevissime ciliato-hirsutis; sepalis 5, orbiculari-ovatis, circiter 1 mm. longis, margine brevissime ciliato-hirsutis exceptis glabris, binis exterioribus quam interioribus paullo angustioribus; petalis orbiculari-ovatis, rotundatis, circiter 1.8 mm. longis, margine minute breviter ciliato-hirsutis, utrinque glabris; staminibus fertilibus 2, filamentis vix 1 mm. longis, glabris, appendicibus dorsalibus bifidis, lobis membranaceis, linearibus, circiter 0.5 mm. longis, sterilibus (staminodeis) circiter 1 mm. longis; ovario ovoideo, glabro, cum stylo circiter 1.5 mm. longo.

INDO-CHINA, Sontoy Province, Mount Bavi, Pételot 2585, October 2, 1940, alt. about 800 m.

**Meliosma longipes** sp. nov. § *Simplices*.

Arbor 7–8 m. alta, inflorescentiis exceptis glabra, ramulis ultimis circiter 5 mm. diametro, plus minusve lenticellatis, pallide brunneis; foliis longissime (8–10 cm.) petiolatis, obovatis vel obovato-ellipticis, coriaceis, integris, utrinque glabris, 22–33 cm. longis, 11–17 cm. latis, in sicco supra atro-olivaceis, opacis, subtus pallide brunneis, apice (haud viso) ut videtur acutis vel acuminatis, basi acutis; nervis primariis 2.5–4 cm. distantibus, utrinque circiter 10, supra vix impressis, subtus valde elevatis, perspicuis, circiter ad marginem arcuato-anastomosantibus, reticulis primariis ter-

tiariisque perspicuis, elevatis; petiolo glabro, ad 10 cm. longo; paniculis terminalibus et ex axillis defoliatis, 15–25 cm. longis, erectis, pedunculatis, ramis primariis paucis, distantibus, longioribus ad 12 cm. longis, consperse breviter subadpresso subferrugineo-hirsutis (praesertim partibus junioribus), floribus in ramulis ultimis racemose dispositis, haud glomeratis, pedicellis crassis, breviter adpresso hirsutis, 1–1.5 mm. longis, bracteolis late ovatis, circiter 1 mm. longis, subacutis, parce breviter adpresso hirsutis; sepalis 5, binis exterioribus ellipticis, trinis interioribus suborbiculari-ovatis vel subreniformi-ovatis, omnibus circiter 1.2 mm. longis, rotundatis, ad marginem brevissime ciliatis; petalis 3, margine minute breviter ciliato excepto glabris, suborbicularibus vel obovato-orbicularibus, circiter 2 mm. longis, 2–2.5 mm. latis; filamentis fertilibus glabris, 1 mm. longis, appendicis dorsalis bifidis, lobis linearibus, 0.5 mm. longis, sterilibus (staminodeis) 3 circiter 1 mm. longis et latis, partibus apicalis incurvatis, sulcatis, filamentis latissimis; ovario ovoido, glabro, cum stylo circiter 1.5 mm. longo, 2-loculari, stylo crasso, sursum angustato.

INDO-CHINA, Tonkin, Sontoy Province, Mount Bavi, *Pételot* 2588, October 2, 1940, alt. about 800 m.

Among the simple-leaved species with very large, entire, glabrous blades, this is very strongly characterized by its unusually long petioles, the longest one seen being 10 cm. in length.

**Meliosma angustifolia** Merr. *Philip. Jour. Sci.* **21**: 384. 1922; Merr. & Chun, *Sun-yatsenia* **2**: 11. 1934; Cufodontis, *Oesterr. Bot. Zeitschr.* **88**: 256. 1939.

*Meliosma crassifolia* Hand.-Maz. *Sinensis* **3**: 191. 1933.

INDO-CHINA, Tonkin, Sontoy Province, Mount Bavi, *Pételot* 2614, 2629, May 24 and July 2, 1940, altitude about 700 m. Kwangsi, Kwangtung, and Hainan.

#### RHAMNACEAE

##### **Rhamnus subapetalus** sp. nov.

Species *Rhamno napalensi* (Wall.) Laws. affinis, differt foliis inflorescentiisque in sicco pallidis, haud nigrescentibus, foliis acutissime subcaudato-acuminatis, inflorescentiis glabris vel sub lente minutissime puberulis, petalis 0 vel quoad visis 1–3 tantum, minutis, linear-lanceolatis, acuminatis, quam filamentis bene brevioribus, planis. Frutex scandens vel subscandens, omnibus partibus glaberrimis vel inflorescentiis sub lente minutissime puberulis, ramis brunneis, teretibus, subverrucoso-lenticellatis, ramulis ultimis ad 1 mm. diametro; foliis plerumque oblongo-ellipticis, firmiter chartaceis, in sicco pallidis utrinque subconcoloribus nitidisque, 10–15 cm. longis, 4–8 cm. latis, basi late acutis, apice graciliter subcaudato-acuminatis, acuminibus rectis vel falcatis, ad 2 cm. longis, distincte apiculatis, margine anguste cartilagineis, leviter recurvatis, irregulariter subcrenato-serrulatis, dentibus 3–5 mm. distantibus, minute subatropiculatis; nervis primariis utrinque 6–8, curvato-adscendentibus, subtus elevatis, perspicuis, ad marginem plus minusve arcuato-anastomosantibus, reticulis ultimis distinctis, transverse parallelis, leviter undulatis; petiolo 12–25 mm. longo, glabro; stipulis lanceolatis, acuminatis, 1–1.5 mm. longis, deciduis; inflorescentiis axillariibus, racemosis, efoliatis et 1–3 cm. longis, vel depauperato-paniculatis, ad 6 cm. longis, ramis folia parva (1–2.5 cm. longa) gerentibus; floribus solitariis vel depauperato-fasciculatis, pedicellis circiter 1 mm. longis, minutissime obscureque puberulis; floribus ♂ ut videtur viridibus, 5-meris, circiter

4 mm. diametro, in sicco pallidis haud nigricantibus; sepalis oblongo-ovatis, acutis vel leviter acuminatis, ad 1.5 mm. longis; petalis 0 vel 1–3, minutis, deciduis, linear-lanceolatis, acuminatis, vix 0.5 mm. longis, quam filaments bene brevioribus, planis, filamenta haud inclientibus; floribus ♀ ♂ simillimis, calycis lobis mox deciduis; stylis brevibus, 3-partitis, mox deciduis; fructibus junioribus globoso-obovoideis, glabris, circiter 5 mm. longis.

INDO-CHINA, Tonkin, Chapa, *Pételot* 2605 (TYPE), 3119, 3121, July 1927 and 1940, scandent in forests, alt. about 1500 m.

When the first material of this apparently distinct species was received in 1928, it was tentatively placed in *Rhamnus napalensis* (Wall.) Laws. in spite of certain manifest differences, especially in the pale rather than black or blackish color of the branchlets, leaves, inflorescences, and flowers, when dry. *Rhamnus napalensis* (Wall.) Laws. is currently credited with a distinctly wide geographic range. To it I have reduced *Rhamnus sumatranus* Ridl. and Rehder has reduced the Chinese *Rhamnus paniculiflorus* Schneider. It is suspected that other proposed species should also be reduced, such as *Rhamnus javanicus* Miq. (already reduced by Koorders), the Philippine *Rhamnus philippensis* C. B. Rob., and *Rhamnus nigrescens* Lauterb. of New Guinea. In spite of the striking differences in the actual color of the dried specimens of *Rhamnus napalensis* (Wall.) Laws. and *R. subapetalus* Merr., I should have hesitated in proposing the latter as a new species but for the very striking petal characters of the latter, these being totally different from the petals of the *Rhamnus napalensis* (Wall.) Laws. complex; as noted in the description the petals may be entirely wanting, or, if present, then only from 1 to 3 in a flower, slender, obscure, acuminate, flat, shorter than and not wider than the filaments, and not enclosing the latter.

#### VITACEAE

##### **Tetrastigma Henryi** Gagnep. Not. Syst. 1: 264. 1910.

INDO-CHINA, Tonkin, route from Hanoi to Hoa Binh at Muong Thon, *Pételot* 5975, March 1933, in savannas, alt. about 200 m. Yunnan, Hainan.

With Gagnepain's interpretation of this species as having from palmately 3-foliolate to pedately 5-foliolate leaves, it is difficult to see how *Pételot* 5975 with strictly 5-foliolate pedate leaves can be distinguished. It may be that more than a single species was included in the original description, but in that case it is believed that the species should be interpreted from the first number cited, *Henry* 11756, a form with strictly 3-foliolate leaves. *Henry* 9992, the last number cited by Gagnepain, is very closely matched by *Pételot* 5816 from Chapa, both specimens being in fruit and in about the same stage of development; and yet one hesitates to state that *Pételot* 5975, with pedately 5-foliolate leaves, represents the same species as *Pételot* 5816 with digitately 3-foliolate ones.

##### **Tetrastigma chapaensis** sp. nov.

Frutex scandens, inflorescentiis exceptis glaber, ramulis ultimis teretibus, brunneis, longitudinaliter striatis, circiter 2 mm. diametro, internodiis 8–10 cm. longis; foliis longe (7–8 cm.) petiolatis, 3-foliolatis, foliolis lanceo-

latis vel oblongo-lanceolatis, chartaceis, olivaceis, graciliter subcaudato-acuminatis, basi acutis, aequilateralibus, vel lateralibus leviter inaequilateralibus, 14–18 cm. longis, 3.5–4.5 cm. latis, margine plus minusve undulatis, distanter (1–2 cm.) serratis, dentibus apice callosis; nervis primariis utrinque circiter 10, gracilibus, subtus elevatis, distinctis, curvato-adscendentibus, ad marginem arcuato-anastomosantibus, reticulis primariis gracilibus, distinctis, laxis; petiolulis valde inaequalibus, lateralibus 8 mm., centralibus 2.5 cm. longis; inflorescentiis axillaribus, solitariis, longe (4–5 cm.) pedunculatis, radiatim 4-ramosis, ramis circiter 3 cm. longis, floribus sublaxe cymosim dispositis, partibus floriferis 4–5 cm. latis, ramis et pedicellis breviter subpappilose brunneo-pubescentibus, pedicellis circiter 3 mm. longis, pedunculo in parte 1–3 inferiore bracteas 4 oppositas ellipticas rotundatas subinduratas concavas glabras subpatulas ferentibus; calycibus breviter subpapillatim brunneo-pubescentibus; petalis 4, glabris, oblongis, 2 mm. longis, apice cucullatis, dorso brevissime corniculatis; ovario stylo glabro, stylo 1 mm. longo, stigmatibus 4, brevis, radiatis.

INDO-CHINA, Tonkin, Chapa, *Pételot* 3074, July 1927, alt. about 1500 m.

A species, in accordance with Gagnepain's treatment of the genus, allied to *Tetrastigma erubescens* Planch. but with differently shaped very much larger leaflets.

#### ELAEOCARPACEAE

**Elaeocarpus limiteanus** Hand.-Maz. *Sinensis* **3**: 193. 1933; Merr. & Chun, *Sun-yatsenia* **2**: 63. 1935.

*Elaeocarpus Maclarei* Merr. *Lingnan Sci. Jour.* **13**: 63. 1934.

INDO-CHINA, Tonkin, Chapa, *Pételot* 1787, 3582, 6156, April 1925, August 1929, and July 1931, in forests, alt. about 1500 m. Kwangsi and Hainan.

Handel-Mazzetti's species was based on a fruiting specimen from Kwangsi and *E. Maclarei* Merr. was described from a Hainan flowering specimen. With abundant material in all stages of development from Kwangsi, Hainan, and now northern Indo-China, I see no valid reason for trying to distinguish two species here. There is an isotype of Handel-Mazzetti's species in the Britton Herbarium, New York Botanical Garden.

**Elaeocarpus linearifolius** Knuth, *Repert. Sp. Nov.* **49**: 66. 1940.

This species was based on *Pételot* 3748 from Chapa, Tonkin, Indo-China, and *Clemens* 3484 from the vicinity of Tourane, Annam. I have seen no specimens that I consider to be referable to Knuth's species.

**Elaeocarpus Petelotii** sp. nov. § *Monocera*.

Arbor, inflorescentiis floribusque exceptis glabra, ramulis ultimis teretibus, 4–5 mm. diametro, novellis plus minusve resinosis; foliis plus minusve confertis, oblongo-ellipticis vel anguste oblongo-obovatis, coriaceis, utrinque glaberrimis et minute distanter verruculosis, 9–11 cm. longis, 3.5–5 cm. latis, breviter obtuse acuminatis, basi acutis, margine crenato-serrulatis, dentibus 3–7 mm. distantibus, minute atro-apiculatis, in sicco pallide brunneo-viridis, supra plerumque nitidis, subtus opacis, paullo pallidioribus, nervis primariis utrinque 7–8, subtus leviter elevatis, curvatis, arcuato-anastomosantibus; petiolo glabro, circiter 1.5 cm. longo; racemis numerosis in ramulis ultimis cum foliis confertis, 6–7 cm. longis, glabris vel parcissime pubescentibus, pedicellis glabris vel subglabris, 6–7 mm. longis; floribus 5-meris,

9 mm. longis; sepalis lanceolatis, acuminatis, 9 mm. longis et 2 mm. latis, coriaceis, extus glabris, in sicco brunneis, intus deorsum perspicue carinatis et glabris vel subglabris sursum cum margine breviter cinereo-pubescentibus; petalis angustis, anguste oblongis, sursum vix vel leviter ampliatis, sepala aequantibus, circiter 1.5 mm. latis, intus dense retrorse hirsutis, deorsum margine plus minusve inflexis perspicue carinatis, extus dense breviter pallide adpresso pubescentibus, sursum (3 mm.) in lacinias 12–14 graciles 2–2.5 mm. longas fisis; staminibus circiter 25, filamentis (1.5–2 mm.) et antheris linearis-oblongis (3.5–4 mm.) minute scaberulis, loculo uno obtuso, altero breviter (0.7 mm.) aristato; disco circiter 2 mm. diametro, glandulis 5, retusis vel bifidis, leviter connatis, parcissime breviter pubescentibus; ovario ovoideo, 2 mm. longo, dense breviter adpresso pallide hirsuto, 3-loculari, loculis 6-ovulatis; stylo 4–4.5 mm. longo, leviter pubescente.

INDO-CHINA, Tonkin, Massif de Tam Dao, *Pételot 4580*, December 1930.

By Gagnepain's arrangement of the Indo-Chinese species, this falls in the group with *Elaeocarpus Bonii* Gagnep. but it has larger flowers than those of the latter species, the petals with more numerous laciniae. By Corner's different arrangement of the Malay Peninsula species (Gard. Bull. Straits Settlements **10**: 310–316. 1939) it falls in his pentamerous group, section B.

**Sloanea sinensis** (Hance) Hemsl. Hook. Ic. **27**: sub t. 2628. 1900; Hu, Jour. Arnold Arb. **5**: 230. 1924;\* Rehd. op. cit. **15**: 91. 1934.

*Echinocarpus sinensis* Hance, Jour. Bot. **22**: 108. 1884.

INDO-CHINA, Annam, Mt. Bana, *Clemens 3897*, May-July 1927, a small tree in forests. Hunan, Chekiang, Fukien, Kwangtung, Kweichow and Kiangsi.

Gagnepain, in Lecomte, Fl. Gén. Indo-Chine **1**: 563. 1910, may have included this form in his conception of *Sloanea Sigin* (Blume) K. Sch., but the cited specimen from Indo-China conforms with Hance's species, the spines on the relatively small capsules being slender and densely arranged. In Blume's Javan type the spines are stouter and are very loosely arranged, as well illustrated by Koorders and Valeton, Atlas, Baumart. Java **3**: t. 434. 1914. The allied Chinese form that Gagnepain has illustrated in Lecomte, Fl. Gén. Indo-Chine **1**: 563. f. 59. 1910, and Not. Syst. **1**: 165. f. 7. 1910, as *Sloanea Hanceana* Hemsl. (*Echinocarpus sinensis* Hemsl. Ann. Bot. **9**: 147. 1895, non Hance 1884) is *Sloanea Hemsleyana* (Ito) Rehd. & Wils. in Sargent, Pl. Wils. **2**: 361. 1915 (*Echinocarpus Hemsleyanus* Ito, Jour. Sci. Univ. Tokyo **12**: 349. 1899). Other synonyms of *Sloanea sinensis* (Hance) Hu are *Castanopsis Cavaleriei* Lév. and *Sloanea chengfangensis* Hu. I do not think that *Sloanea hongkongensis* Hemsl. in Hook. Ic. **27**: t. 2628. 1900 can be distinguished from *S. sinensis* (Hance) Hemsl.

#### STERCULIACEAE

**Sterculia Henryi** Hemsl. Kew Bull. **1908**. 179. 1908.

INDO-CHINA, Tonkin, Chapa, *Pételot 5809*, April 1936, a shrub 1–1.5 m. high, on banks of a ravine, alt. 1300 m. Yunnan.

When first studied, this specimen was indicated as an apparently new

\*While Hu in 1924 independently transferred Hance's species to *Sloanea*, Hemsley had already made the transfer in 1900 thus: "S[loanea] sinensis, Hemsl. (*Echinocarpus*, Hance)" and the authority should be Hemsley.

species, dedicated to the collector, but on critical reconsideration I conclude that *Sterculia Henryi* Hemsl. is represented. The Chapa material has somewhat wider leaves than Hemsley admits for *Sterculia Henryi* Hemsl., described as 4–6 cm. wide, but the maximum width of one of our Henry specimens from Yunnan is 9 cm., and 9 cm. is the maximum width on the Pételet specimen above cited. The indumentum, inflorescence, bracteole, and floral characters are the same as in Hemsley's species, while the habit (a small shrub) and the characteristic crowded bracts or stipules at the tips of the branches are also identical.

#### DILLENIACEAE

**Saurauia macrotricha** Kurz ex Dyer in Hook. f. Fl. Brit. Ind. 1: 287. 1874.

INDO-CHINA, Tonkin, Chapa, Massif de Fan Tsi Pan, Pételet 2689, July 1940, a shrub 4–5 m. high with red flowers, in open forests, alt. about 1300 m. Burma, Yunnan, and Khasia (Jaintia Hills, Ruse 152).

The original and only published description is very incomplete, but the above cited specimen conforms to the brief characters as given, and the specimen moreover matches *Ruse 152*, determined at Calcutta as representing Kurz's species. The type was from either Burma or Yunnan, both localities being cited in the original description; I have seen no Yunnan or other Chinese material that I consider to represent Kurz's species.

#### THEACEAE

**Camellia pubicosta** sp. nov. § *Eucamellia*

Frutex 4–5 m. altus, ramis teretibus, glabris, ramulis ultimis circiter 1.5 mm. diametro, breviter subpatule pubescentibus; foliis oblongis vel late oblongo-lanceolatis, 12–15 cm. longis, 4–5.5 cm. latis, chartaceo-coriaceis, perspicue subcaudato-acuminatis, acuminibus gracilibus, obtusis, 1.5–2 cm. longis, basi late acutis vel obtusis, margine, basi acumineque exceptis, distincte serrato-crenatis, dentibus 4–6 mm. distantibus, in sicco utrinque minutissime verruculosis, supra olivaceis vel olivaceo-viridibus, plus minusve nitidis, glaberrimis, subtus plerumque brunneis, secus costam dense subadpresso cinereo-pubescentibus, nervis obscure pubescentibus glabrescentibus; nervis primariis utrinque 12–14, supra impressis, subtus elevatis, perspicuis, leviter curvatis, arcuato-anastomosantibus, petiolo breviter pubescenti, 3–5 mm. longo; floribus in axillis superioribus, solitariis vel binis, 2 cm. diametro, ut videtur albidis, pedicellis glabris, circiter 8 mm. longis, bracteolis oblongo-ovatis, acutis vel acuminatis, circiter 2 mm. longis; sepalis exterioribus ovatis, acutis, 2–3 mm. longis, margine breviter ciliatis, interioribus majoribus, subreniformibus, rotundatis, ad 4 mm. latis; petalis utrinque glabris, minutissime verruculosis, subellipticis vel obovato-ellipticis, rotundatis, 11 mm. longis, 7 mm. latis; staminibus numerosissimis, filamentis glaberrimis, in parte libera filiformibus, 4–8 mm. longis, deorsum (2 mm.) connatis, tubum glabrum formantibus; ovario ovoideo, dense adpresso hirsuto; stylis 3, liberis, circiter 8 mm. longis, deorsum densissime, sursum sparsim adpresso hirsutis; fructibus globosis, 2.5 cm. diametro, vix vel tarde dehiscentibus, pericarpio minute verruculoso, crustaceo, vix 0.5 mm. crasso, glabro vel versus apicem plus minusve adpresso hirsuto; seminibus solitariis, globosis, 1.8 cm. diametro, brunneis, nitidis.

INDO-CHINA, Sontoy Province, Mount Bavi, Pételet 1727 (TYPE, flower), 2598 (fruit) Nov. 19, 1924, Aug. 28, 1940, a shrub 4 to 5 m. high, at altitudes from 400 to 800 m.

The first specimen of this, in flower, received at the University of California in 1925, was placed tentatively with *Camellia sinensis* (Linn.) O. Kuntze, where it manifestly does not belong, as verified in 1941 when a fruiting specimen was received from the same locality (Mount Bavi). It is distinguishable by its prominently nerved, subcaudate-acuminate, toothed leaves, its three free styles, numerous glabrous filaments united into a short tube, and its apparently indehiscent, 1-seeded globose fruits, the very thin pericarp being crustaceous.

**Schima khasiana** Dyer in Hook. f. Fl. Brit. Ind. 1: 289. 1874, var. **sericans** Hand.-Maz. Anz. Akad. Wiss. Wien Math.-Nat. Kl. 61: 108. 1924, Symb. Sin. 7: 396. 1931.

INDO-CHINA, Tonkin, route from Laokay to Chapa, *Pételot* 3109, July 1927, a tree, 12 m. high, alt. 1900 m. Yunnan.

This specimen, in fruit, agrees very closely with an isotype of Handel-Mazzetti's variety (in flower). It impresses me as a very weak variety which perhaps should be merged with the species.

**Schima khasiana** Dyer var. **macrocarpa** var. nov.

A typo differt fructibus multo majoribus, globosis vel depresso-globosis, circiter 3 cm. diametro et 2.5 cm. alto.

INDO-CHINA, Tonkin, Chapa, *Pételot* 5802, August 1931, a small group of trees about 15 m. high, altitude 1500 m.

It may be desirable to make some other disposition of this large fruited form when flowering material becomes available. In vegetative characters it closely approximates *Schima khasiana* Dyer, and, to a degree approaches the var. *sericans* Hand.-Maz. in that the leaves are slightly pubescent beneath especially along the midrib in the lower part. The species occurs in northern India, Burma, southeastern Tibet and Yunnan.

#### DIPTEROCARPACEAE

**Vatica subglabra** sp. nov. § *Synaptea*.

Arbor magna, inflorescentiis minute pubescentibus exceptis glabra, vel ramulis novellis minutissime brevissime stellato-pubescentibus glabrescentibus; ramis teretibus, subcinereis vel subcinereo-brunneis, glabris, ramulis ultimis gracilibus, 1–1.5 mm. diametro, lenticellatis, brunneis, glabris, vel novellis minutissime breviter stellato-pubescentibus, indumento subferrugineo vel subcinereo; foliis chartaceis, oblongo-ellipticis, acuminatis, basi rotundatis vel latissime acutis, in sicco plerumque pallide olivaceis, utrinque subconcoloribus, 7–13 cm. longis, 2.5–5.5 cm. latis; nervis primariis utrinque 10–12, gracilibus, subtus leviter elevatis; petiolo glabro, 5–8 mm. longo; stipulis non visis, ut videtur deciduis; inflorescentiis axillaribus terminalibusque, 7–10 cm. longis, partibus vetustioribus glabris, junioribus minute breviter stellato-pubescentibus, indumento cinereo; floribus extus dense breviter cinereo-pubescentibus, pedicellis 3–5 mm. longis, minute stellato-pubescentibus; calycis lobis utrinque breviter cinereo-pubescentibus, binis paullo majoribus oblongis, rotundatis, 1–1.2 mm. longis, trinis minoribus paullo angustioribus, circiter 1 mm. longis, lanceolatis, acutis vel obscure acuminatis; petalis extus dense brevissime cinereo-pubescentibus, intus glabris, oblongis, vel deorsum leviter angustatis, obtusis; staminibus 15, filamentis

brevissimis, antheris 0.5 mm. longis, subtruncatis vel connectivo brevissime producto; ovario subdepresso, minute alveolato, minute puberulo; stylo tereti, glabro, 0.4 mm. longo, stigmatibus 3, minutis; fructibus globosis, circiter 7 mm. diametro, glabris vel consperse minute subgranulosis, sepalis persistentibus accrescentibus, erectis, glabris, binis majoribus oblongis, chartaceo-membranaceis, plerumque oblongis vel deorsum leviter angustatis, basi late acutis, apice rotundatis, 5-nerviis, reticulatis, 5–6 cm. longis, 1.4–1.7 cm. latis, trinis minoribus oblanceolatis, acutis vel obscure acuminate, 5-nerviis, 1.6–2 cm. longis, 4–5 mm. latis.

INDO-CHINA, Sontoy Province, To Phap, *Pételot* 2600 (TYPE, fruit), 2610, 2643, June 2, July 7, and August 15, 1940, a large tree near water courses.

This species clearly belongs in the group with *Vatica astrotricha* Hance, *V. faginea* Dyer, and *V. Dyeri* King, differing from all of them in its indumentum, which occurs only on the very youngest branchlets, the younger parts of the inflorescences, and on the flowers; this indumentum is minute and consists of more or less scattered, very short, cinereous or, at times, subferrugineous stellate hairs of a type quite different from that of the three species listed above. *Vatica tonkinensis* A. Chev. Bull. Écon. Indo-Chine **20**: 799. 1918, remains undescribed, like the considerable number of other proposed new species in various families whose names appear in the same paper.

#### FLACOURTIACEAE

##### **Homalium tonkinense** sp. nov. § *Blackwellia*.

Arbor circiter 6 m. alta, inflorescentiis paniculatis exceptis glaberrima; ramulis ultimis 1.5–2 mm. diametro, in sicco atris vel subatris; foliis oblongis vel oblongo-lanceolatis, perspicue longe acuminatis, subcoriaceis, 8–11 cm. longis, 3–4 cm. latis, basi acutis, in sicco supra nitidis, subtus paullo pallidioribus, margine subundulato-crenatis; nervis primariis utrinque 7–8, subtus elevatis, curvato-subadscendentibus, distinctis; petiolo 5–7 mm. longo, glabro; inflorescentiis paniculatis, paniculis terminalibus axillibusque, amplis, multifloris, 9–15 cm. longis, subcinereo-pubescentibus, pilis brevibus, haud adpressis, ramis primariis ad 5 cm. longis; floribus 6-meris, in ramis ramulisque racemose dispositis, verticillatim-subfasciculatis haud confertis, circiter 3 mm. longis, articulatis, breviter patule ciliatis; calycis tubo subobconico, 2 mm. longo, vix vel obscure longitudinaliter sulcato, breviter patule pubescenti; sepals 6, anguste oblongis vel linearis-oblongis, obtusis vel acutis, 2–2.5 mm. longis, longe ciliatis; petalis sepals simillimis et aequantibus; staminibus 6, filamentis ad 4 mm. longis, deorsum longe consperse ciliatis, sursum glabris; ovario consperse longe ciliato; stylis 3, glabris vel basi consperse ciliatis, 2 mm. longis.

INDO-CHINA, Tonkin, Vinh Yen Province, route from Vinh Yen to Tam Dao, Dont des Linh, *Pételot* 6164, Oct. 15, 1936.

This species is most closely allied to *Homalium paniculiflorum* Merr. & Metc., of Hainan, which it closely resembles, but from which it may be readily distinguished by its differently shaped, long-acuminate leaves as well as by being entirely glabrous except for the inflorescences, while the indumentum on the latter is not appressed. The styles and filaments are distinctly shorter than in the Hainan species. Both species are manifestly allied to *Homalium cochinchinense* (Lour.) Druce (*H. fagifolium* Benth.),

from which they may be at once distinguished by their paniculate rather than strictly racemose inflorescences.

#### PASSIFLORACEAE

##### **Passiflora pertriloba** sp. nov. § *Decaloba-Polyanthea*.

Planta ut videtur herbacea, scandens, cirrhosa, ramis gracilibus, plus minusve villosis glabrescentibus, vix 2 mm. diametro, ramulis gracilioribus; foliis alternis, perspicue 3-lobatis, fere hastatis, ad 7 cm. longis et 8 cm. latis, basi latissime subtruncato-rotundatis, minute cordatis, 3-nerviis, subchartaceis, in sicco olivaceis, utrinque glabris vel junioribus ad costam nervosique leviter pubescentibus, margine breviter hirsutis, lobis ovatis, acutis vel leviter acuminatis, lobis terminalibus majoribus, 2.5–5 cm. longis, 2–4 cm. latis, lateralibus patulis, ad 2.5 cm. longis latisque; petiolo plus minusve hirsuto, 1.3–4 cm. longo, infra medio biglanduloso, glandulis subsessilibus vel brevisime stipitatis, ad 0.8 mm. diametro, subpatelliformibus; stipulis linearilanceolatis, graciliter acuminatis, pubescentibus, 4–5 mm. longis; floribus circiter 1.5 cm. diametro, plerumque 2–3-fasciculatis, axillaribus, pedicellis gracilibus ad 1 cm. longis, leviter pubescentibus, articulatis; calycibus glabris, lobis oblongo-lanceolatis, sursum angustatis, acutis, leviter acuminatis vel subobtusis, distincte reticulatis, circiter 6 mm. longis; coronae laciniae numerosae 2–4 mm. longae, 0.25 mm. latae, deorsum leviter angustatae; androgynophoro glabro, 4 mm. longo; staminibus 5, filamentis 2.5–3 mm. longis, antheris oblongo-ellipticis, 3 mm. longis; ovario glabro, subellipsoideo, stylis 2–3 mm. longis, stigmatibus capitatis.

INDO-CHINA, Tonkin, Hanoi, in hedges at the Mot Cot pagoda, Pételot 2482, Feb. 1938.

A species belonging in the general group with *Passiflora Leschenaultii* DC. and strikingly different from all the species hitherto described from Indo-China and contiguous areas. The leaves are prominently 3-lobed, almost hastate in shape, all lobes acute or slightly acuminate, the terminal one larger than the lateral ones, the latter distinctly spreading. The leaf shape in general reminds one of some of the species of *Acer* with 3-lobed leaves and some forms of *Hedera helix* Linn.

#### ELAEAGNACEAE

##### **Elaeagnus Delavayi** Lecomte, Not. Syst. 3: 156. 1915.

INDO-CHINA, Tonkin, Chapa, Pételot 4466, Oct. 1932, in shrubby savannas, alt. 1500 m. Yunnan.

This specimen agrees with the original description and matches an isotype of Lecomte's species in the herbarium of the Arnold Arboretum.

**Elaeagnus Loureirii** Champ. Hook. Jour. Bot. Kew Gard. Miscel. 5: 196. 1853; Serv. Beih. Bot. Centralbl. 25(2): 68. f. 3, 12–15. 1909; Rehd. in Sargent, Pl. Wils. 2: 416. 1915.

INDO-CHINA, Tonkin, Chapa, Pételot 2121, Dec. 28, 1938, a shrub with long sprawling branches in shrubby savannas, alt. 1500 m. Hongkong, Kwangtung, and Yunnan.

This number was originally identified as representing *Elaeagnus gonyanthes* Benth., to which it cannot be referred. It agrees very closely with Hongkong and Yunnan material and with the published descriptions of Champion's species.

## ARALIACEAE

**Panax pseudo-ginseng** Wall. Trans. Soc. Med. Phys. Calcutta **4**: 117. 1829, Pl. As. Rar. **2**: 30. t. 137. 1831.

*Aralia pseudo-ginseng* Benth. ex C. B. Clarke in Hook. f. Fl. Brit. Ind. **2**: 721. 1879.

INDO-CHINA, Tonkin, Chapa, *Pételot* 2489, April 1935, in open forests, alt. 1500 m. Himalayan region to Yunnan.

The Index Kewensis reference to Wallich's species is his 1831 publication, but the species was described in detail in 1829, cited by Wallich as "Act. Soc. Med. Phys. Calcutta iv. 117." This is the "Transactions" and the volume, which I have examined, was published in 1829. Pitard had only rhizomes of a *Panax* from Indo-China and included a short generic description only in Lecomte, Fl. Gén. Indo-Chine **2**: 1162. 1923.

## CORNACEAE

**Cornus controversa** Hemsl. Bot. Mag. **135**: sub. t. 8261. 1909; Kew Bull. **1909**: 331. 1909; Wang, Pflanzenr. **41**(iv. 229): 49. 1910; Nakai, Fl. Sylv. Kor. **16**: 81. t. 25, 26. 1927.

INDO-CHINA, Tonkin, Chapa, *Pételot* 2485, April 1936, in shrubby savannas, alt. 1500 m. Himalayan region through China to Kwangtung and Shantung to Korea, Japan, and Formosa.

Hitherto a single species has been credited to Indo-China, *Cornus capitata* Wall.; Evrard in Lecomte, Fl. Gén. Indo-Chine **2**: 1192. 1923. In addition to the very characteristic and widely distributed *Cornus controversa* Hemsl., which is well characterized by its large alternate leaves, the following opposite-leaved Indo-Chinese species is described as new:

**Cornus oligophlebia** sp. nov. § *Thelecrania, Amblycaryum*.

Arbor 12–15 m. alta, ramis ramulisque glabris, ramulis in sicco subatris vel atro-brunneis, ultimis 2.5–3 mm. diametro novellis plus minusve adpresso ferrugineo-pubescentibus; foliis ellipticis vel elliptico-ovatis, acuminatis, basi late acutis vel rotundatis, coriaceis, rigidis, utrinque subconcoloribus vel subtus paullo pallidioribus, subnitidis vel opacis, in sicco olivaceis vel atro-olivaceis, 8–14 cm. longis, 4–8 cm. latis, glabris, vel utrinque conspersissime breviter adpresso subalbido-pubescentibus glabrescentibus; nervis primariis utrinque 3, subtus elevatis, perspicuis, curvatis vel curvato-adscendentibus, obscure arcuato-anastomosantibus; petiolo crasso, 1–2 cm. longo, glabro vel consperse subadpresso subferrugineo-pubescenti, alabastris axillaribus (quoad visum) adpresso ferrugineo-pubescentibus; inflorescentiis terminalibus, amplis, cymoso-paniculatis, pedunculatis, 8–11 cm. latis, aper-tis, multifloris, pedunculo 2–3 cm. longo, ramis inferioribus 4–6 cm. longis, patulis, partibus vetustioribus glabris vel glabrescentibus, in sicco subatris, partibus junioribus breviter consperse subadpresso pubescentibus; floribus albidis, pedicellis 1–1.5 mm. longis, breviter adpresso cinereo-pubescentibus; calycibus plus minusve urceolatis, 2 mm. longis, subdense breviter adpresso cinereo- vel subferrugineo-pubescentibus, dentibus 4, brevissimis, acutis, vix 0.5 mm. longis; petalis oblongis, circiter 3 mm. longis et 1.3 mm. latis, acutis, extus brevissime conspersissime adpresso pubescentibus; filamentis glabris, petalis aequilongis; antheris 1.5 mm. longis; stylo cylindraceo, 2 mm. longo, obscure longitudinaliter striato-sulcato, glabro, stigmate punctiformi vel brevissime 2-lobato.

INDO-CHINA, Tonkin, Chapa, *Pételot* 2484 (TYPE), 3268, July 1928 and August 1931, altitude 1400–1500 m.

The alliance of this species is clearly with *Cornus Wilsoniana* Wang., which is represented by specimens from Hupeh and Kwangtung. It differs in its much larger, thicker, differently shaped, glabrous or nearly glabrous leaves, which are of about the same color on both surfaces, olivaceous or atro-olivaceous when dry, not pale as in Wangerin's species, the primary reticulations being evident, especially beneath, these being slender and obscure or even obsolete in *Cornus Wilsoniana* Wang.

Var. **impressinervis** var. nov.

A typo differt foliis angustioribus (7–12 cm. longis, 3–4 cm. latis) gracili-  
ter acuminatis, nerviis primariis supra impressis, inflorescentiis minoribus  
(5–6 cm. latis), floribus paullo majoribus.

INDO-CHINA, Tonkin, Chapa, *Pételot* 2484, August 1940, a tree 8–10 m. high, altitude 1500 m.

Additional material may well prove that this form, here placed as a variety, may be worthy of specific rank.

#### ERICACEAE

**Lyonia annamensis** (Dop) comb. nov.

*Pieris annamensis* Dop in Lecomte, Fl. Gén. Indo-Chine 3: 726, f. 82, 4–10. 1930.

*Poilane* 3574 in the herbarium of the Arnold Arboretum, named by Dr. Dop, is apparently an isotype (the collector but not the number is cited in the original description). It is in all respects a *Lyonia* (*Xolisma*) for those who retain this as a generic segregate from *Pieris*.

**Lyonia chapaensis** (Dop) comb. nov.

*Pieris chapaensis* Dop in Lecomte, Fl. Gén. Indo-Chine 3: 726. 1930.

INDO-CHINA, Tonkin, Chapa, *Pételot* 3214, May 1931, altitude about 1400 m. The type was from the general vicinity of Chapa.

Dr. Dop records two other species of *Pieris* from Indo-China. *P. ovalifolia* D. Don is *Lyonia ovalifolia* (D. Don) Drude (*Xolisma ovalifolia* Rehd.), a species very widely distributed in Asia, while *Pieris langbianensis* A. Cheval. ex Dop op. cit. 728 is apparently a *Lyonia*; I have seen no material representing the latter species.

**Rhododendron oxyphyllum** Franch. Jour. de Bot. 12: 264. 1898; Hutch. in Sp. Rhod. 621. 1930.

INDO-CHINA, Tonkin, Chapa, Lo Qui Ho Peak, *Pételot* 2343, April 1938, alt. 2200 m. Yunnan, Kwangsi, and Siam.

This specimen, with entirely glabrous ovaries, peculiarly simulates another collection from Chapa, *Pételot* 6260, that I have referred to *Rhododendron laoticum* P. Dop, ex descr., but which has very densely pubescent ovaries. Dop describes the corolla lobes of this as *linear* and 2 cm. long, but does not indicate their width. This is probably an error, as *linear* petals scarcely occur in *Rhododendron*. In *Pételot* 6260 the corolla lobes are oblong, about 2 cm. long and 10–12 mm. wide.

#### OLEACEAE

**Jasminum trineuron** Kobuski, Brittonia 4: 167. 1941.

INDO-CHINA, Tonkin, Bac Giang Province, Minh Le, *Pételot* 2524, Feb. 1938, det. Kobuski. Type from Burma, the species also in Hainan.

**Linociera macrothyrsa** sp. nov.

Arbor parva, circiter 5 m. alta, glabra vel subglabra, ramis pallide brunneis, glabris, conspersissime lenticellatis, ramulis ultimis subcastaneis, minutissime subfurfuracei-lepidotulis; foliis amplis, chartaceis vel subcoriaceis, oblongo-ellipticis, 12–22 cm. longis, 4–8 cm. latis, integerrimis, in sicco brunneis vel pallide olivaceo-brunneis, utrinque subconcoloribus, glabris vel junioribus supra minutissime lepidotulis, breviter obtuseque acuminatis, basi acutis, late acutis vel leviter decurrentibus, subtus secus costam nervosque minute verruculosis, vetustioribus supra uniformiter minutissime verruculosis; nervis primariis utrinque circiter 12, subpatulis, distantibus, versus marginem curvatis, obscure arcuato-anastomosantibus, reticulis laxis, cum nervis subtus satis distinctis; petiolo 3–3.5 cm. longo minute sublepidoto glabrescenti; inflorescentiis axillaribus, longe pedunculatis (pedunculo 3.5–6 cm. longo), paniculatis, cum pedunculis 13–18 cm. longis, glabris vel partibus junioribus obscurissime breviter pubescentibus, ramis primariis oppositis, paucis, patulis, longioribus 3.5–5 cm. longis; floribus sublaxe dispositis, plerumque longe (3–5 mm.) pedicellatis, bracteis lanceolatis, 3–5 mm. longis, lanceolatis, vel inferioribus quoad visis oblanceolatis, foliaceis, ad 1.5 cm. longis et 2.5 mm. latis; floribus ♂ et ♀; sepalis oblongo-ovatis, obtusis acutis vel leviter acuminatis, circiter 1 mm. longis, margine breviter ciliatis, ceteroquin glabris; petalis subliberis vel deorsum minute connatis, ellipticis vel oblongo-ellipticis, glabris, 3–4 mm. longis, 1.5–2 mm. latis, sursum haud angustatis, apice rotundatis; filamentis brevissimis 0.5 mm. longis, crassis, antheris ellipticis vel oblongo-ellipticis, 2 mm. longis; ovario glabro, anguste ovoideo; stylo vix 1 mm. longo.

INDO-CHINA, Tonkin, Chapa, *Pételot* 2690, August 1940, a white flowered tree about 5 m. high in open forests, altitude about 1500 m.

This species is characterized by its large, long-petioled leaves, its ample, long-peduncled, open panicles, and its unusually large flowers. Stamine and perfect flowers occur in the same inflorescences, there being no differences between them except in the absence of the ovary in the former. By Gagnepain's arrangement of the Indo-Chinese species, it falls in the group with *Linociera macrophylla* Wall., but it is remote from that species, both as represented by the published descriptions and by many specimens available for comparison from India, Siam, Indo-China, and China.

**Linociera subcapitata** sp. nov.

Frutex vel arbor parva, glaberrima, ramis pallide brunneis, teretibus, obscure lenticellatis, ramulis ultimis circiter 1.5 mm. diametro, plus minusve sulcatis; foliis inter minora, ellipticis vel ovato-ellipticis, integerrimis, 6–9 cm. longis, 2.5–4 cm. latis, subcoriaceis, breviter subacute vel subobtuse acuminatis, basi rotundatis vel latissime acutis, in sicco haud verruculosis, supra brunneis, nitidis, subtus paullo pallidioribus; nervis primariis utrinque circiter 8, subpatulis, gracilibus, haud perspicuis, circiter ad marginem arcuato-anastomosantibus, reticulis laxis, obscuris; petiolo 7–10 mm. longo; inflorescentiis axillaribus, solitariis, pedunculo 2.5–3.5 cm. longo, floribus ad apice dense subcapitatum confertis capitulum 5–7 mm. diametro formanti-

bus, vel sursum dichotome ramosis, ramis binis 4–8 mm. longis singuli capitulum ferentibus; floribus sessilibus vel brevissime pedicellatis, confertis; sepalis suborbiculari-reniformibus, latissime rotundatis, circiter 1.5 mm. longis et 2 mm. latis; petalis fere liberis, ellipticis vel oblongo-ellipticis, sursum haud angustatis, apice late rotundatis, circiter 3 mm. longis et 1.5 mm. latis; staminibus haud visis; ovario ovoido, glabro, stylo circiter 1 mm. longo; bracteis coriaceis, oblongo-ovatis, 1.5–1.8 mm. longis, acutis vel acuminatis, bracteolis similibus sed brevioribus.

INDO-CHINA, Langson Province, Massif du Mau Son, *Pételot* 1720, January 1925, altitude about 1200 m.

This species is remote from all of those admitted for Indo-China by Gagnepain, and is strongly characterized by its flowers being sessile or subsessile and crowded into small depressed-globose heads at the tip of the elongated simple peduncle, or arranged in two similar heads where the inflorescences are branched. The specimen is just beyond anthesis, but I was fortunate in finding in one of the heads a single flower from which it was possible to describe the petals; the stamens had fallen.

In connection with Gagnepain's interpretation of *Linociera cambodiana* Hance, it is suspected that he has included in his description some material that does not belong with Hance's species. Hance states that the leaves on his type were 2½ to 3 inches long; an examination of his type (*Pierre* from Phy Kok Island) in the British Museum herbarium shows them to vary from 6 to 11 cm. by 2 to 3.5 cm. Gagnepain describes the leaves as being 12 to 20 cm. long and 3 to 7 cm. wide.

#### GENTIANACEAE

**Gentiana cephalantha** Franch. in Hemsl. Jour. Linn. Soc. Bot. **26**: 125. 1890; Marq. Bot. Mag. **159**: t. 9468. 1936, Kew Bull. **1937**: 141. 1937.

INDO-CHINA, Tonkin, Chapa, Massif de Fan Tsi Pan, *Pételot* 3666, February 1929, alt. 1800 m. Szechuan, Yunnan, and northern Burma.

#### APOCYNACEAE

**Aganosma grandiflora** sp. nov.

Frutex scandens, ramulis junioribus inflorescentiisque exceptis glaber, ramis teretibus, glabris, subatris, ramulis ultimis 1.5–2 mm. diametro, conspersissime adpresso pubescentibus glabrescentibus; foliis oblongis vel oblongo-ellipticis, chartaceis, 5–7 cm. longis, 2–2.5 cm. latis, in sicco olivaceis, subnitidis, subtus paullo pallidioribus, breviter acute acuminatis, basi acutis vel late acutis, nervis primariis utrinque 10–12, gracilibus, haud perspicuis, obscure arcuato-anastomosantibus, reticulis subobsoletis; petiolo 5–6 mm. longo, glabro; inflorescentiis terminalibus, subcymosis, paucifloris (floribus 6–10), cum floribus magnis apertis, 8–10 cm. longis, 7–10 cm. latis, breviter pedunculatis vel e basi ramosis, plus minusve adpresso subcinereo-pubescentibus, ramis primariis paucis, subpatulis, ad 3 cm. longis; floribus albidis, circiter 4 cm. longis, pedicellatis; calycis lobis subpatulis, lanceolatis, acuminatis vel anguste acutis, circiter 12 mm. longis et 3.5 mm. latis, utrinque dense subcinereo-puberulis; corollae tubo extus puberulo, circiter 11 mm. longo, paullo supra basim leviter inflato et 4 mm. diametro, sursum angustato; lobis in partibus expositis puberulis et intus circa basim subhirsutis, ceteroquin glabris, circiter 2.5 cm. longis et 9–12 mm. latis,

obtusis vel subacutis, plus minusve inaequilateralibus; antheris lanceolatis, acuminatis, circiter 5 mm. longis; disco cylindrico, glabro, subcarnoso, crenato, circiter 1.5–2 mm. longo et 1.5 mm. diametro.

INDO-CHINA, Tonkin, near Than Moi, *Pételot* 2447, May 12, 1938, a liana growing on calcareous formations, flowers white.

A species characterized among its congeners, *Aganosma calycina* A. DC., *A. Schlechterianum* Lév. as interpreted by Tsiang (Sunyatsenia 4: 31. 1939), and allied species, by its large flowers, the corollas just before the petals spread being 2.5 cm. long. Among the Indo-Chinese species its alliance is with *A. Harmandiana* Pierre and *A. siamensis* Craib, but it is clearly distinct from both.

**Melodinus brachiphyllus** sp. nov.

Frutex scandens, magnus, ramulis inflorescentiis et foliis, praesertim subtus, molliter pubescentibus, ramis teretibus, subcastaneis, leviter pubescentibus, ramulis ultimis dense breviter pubescentibus, 1.5–2 mm. diametro; foliis parvis, ellipticis vel oblongo-ellipticis, coriaceis, 3.5–5 cm. longis, 1.5–2.5 cm. latis, breviter subobtuse acuminatis, basi acutis, supra olivaceis, subconsperte pubescentibus, subtus pallidioribus, dense molliter pubescentibus; nervis primariis utrinque 6–7, haud perspicuis, subtus leviter elevatis; petiolo pubescenti, 4–6 mm. longo; inflorescentiis terminalibus et in axillis superioribus, subcymosis, paucifloris, dense molliter pubescentibus, cum floribus 5–6 cm. longis, pedicellis 5–6 mm. longis, bracteis oblongo-lanceolatis, pubescentibus, 3–4 mm. longis, bracteolis binis, anguste oblongis, subobtusis, extus dense pubescentibus, ad 3 mm. longis, circiter 1 mm. latis; sepalis extus dense molliter pubescentibus, intus glabris, ellipticis vel oblongo-ellipticis, obtusis, 3.5–4 mm. longis, 1.8–2 mm. latis; corollae tubo cylindrico, 1.6 cm. longo, extus pubescenti (basi excepta), lobis subrhomboideis, circiter 1.5 cm. longis et 1 cm. latis, obtusis, deorsum angustatis, partibus expositis pubescentibus ceteroquin glabris; squamis 10, oblongis, plus minusve pubescentibus, circiter 1.5 mm. longis; antheris lanceolatis, acuminatis, 1.8 mm. longis, filamentis circiter 3–4 mm. supra basim tubi insertis, tubo hic haud inflato; ovario anguste ovoideo, glabro, stylo glabro, circiter 3 mm. longo.

INDO-CHINA, Langson Province, between Dong Mo and Than Moi, *Pételot* 2438, April 28, 1938, a large liana.

This species is characterized by its indumentum as well as by its unusually small leaves. It has the corolla throat scales ten, two opposite the base of each petal, thus falling in the group with *Melodorum erianthus* Pitard, but otherwise it is not closely allied to that species.

ASCLEPIADACEAE

**Gymnema alterniflorum** (Lour.) Merr. Trans. Am. Philos. Soc. II. 24(2): 318.

1935, *cum syn.*

*Apocynum alterniflorum* Lour. Fl. Cochinch. 168. 1790.

*Gymnema affine* Decaisne in DC. Prodr. 8: 622. 1844; Tsiang, Sunyatsenia 2: 196. 1934.

INDO-CHINA, Tonkin, Bac Giang Province, near Bo Ha, *Pételot* 2435, Nov. 6, 1938; Thoi Nguyen Province, route from Hanoi to Thoi Nguyen, *Pételot* 2421, Nov. 12, 1939, in thickets and hedges. Chekiang and Fokien to Formosa, Kwangtung, and Hainan.

*Gymnema formosanum* Warb. Repert. Sp. Nov. 3: 307. 1907, type from Formosa, should be compared with this species.

**Toxocarpus Gagnepainii** Tsiang, Sunyatsenia 4: 84. f. 26. 1939.

INDO-CHINA, Annam, Dalat, Squires 879. Known only from the type collection.

**Toxocarpus Klossii** S. Moore, Jour. Nat. Hist. Soc. Siam 4: 149. 1921.

INDO-CHINA, Annam, Tour Cham, Boden-Kloss, herb. Brit. Mus. From the description a very different species than the preceding one.

**Toxocarpus ovalifolius** Tsiang, Sunyatsenia 2: 193. t. 35. 1934.

INDO-CHINA, Tonkin, Bac Giang Province, near Bo Ha. Pételot 2434, Nov. 6, 1938. Previously known only from Hainan.

#### CONVOLVULACEAE

**Ipomoea cairica** (L.) Sweet, Hort. Brit. 287. 1827.

*Convolvulus cairicus* Linn. Syst. ed. 10. 922. 1759.

*Ipomoea palmata* Forsk. Fl. Aeg.-Arab. 43. 1775; C. B. Clarke in Hook. f. Fl. Brit. Ind. 4: 214. 1883.

INDO-CHINA, Tonkin, Hanoi, Pételot 3673, Oct. 1924, in hedges.

Introduced here as it is in various other tropical countries, probably native of the Old World tropics.

**Erycibe subspicata** Wall. List. no. 1392. 1829, *nomen nudum*; G. Don, Gen. Syst. 4: 392. 1838; C. B. Clarke in Hook. f. Fl. Brit. Ind. 4: 181. 1883; Prain, Jour. As. Soc. Bengal 73(2): 15. 1904, *in nota*.

INDO-CHINA, Tonkin, Sontoy Province, Mount Bavi, Pételot 5972, 6605, Oct. 11, 1936, and Nov. 1, 1940, alt. 150–500 m.

These specimens are in all respects the same as Henry 12514, 12739, 13430 from Yunnan, determined by Prain, Jour. As. Soc. Bengal 73(2): 15. 1904, *in nota* sub *Erycibe albiflora* Hall. f. as representing Wallich's species. Additional Yunnan specimens are Wang 79579, 80120, 80121, 80773, 80834 collected in 1935–36. Assam, Khasia, and Burma.

#### VERBENACEAE

**Callicarpa heterotricha** sp. nov.

Arbor 7–8 m. alta, ramulis ultimis 4–5 mm. diametro, densissime impli-cato-pubescentibus, pilis brevioribus numerosissimis substellatis, paucioribus intermixtis elongatis, depauperato-plumosis, subflaccidis, ad 3 mm. longis, indumento subferrugineo; foliis chartaceis, integris, obovatis vel oblongo-obovatis, acutis vel breviter acuminatis, basi acutis vel leviter decurrenti-acuminatis, 15–20 cm. longis, 6.5–10 cm. latis, supra olivaceis, ad costam nervosque dense pubescentibus, indumento ut in ramulis junioribus, parenchymate pilis sparsis brevibus stellatis vel depauperato-plumosis insperso, subtus pallidioribus sed haud albidis, ad costam nervosque densissime, in parenchymate manifeste sed haud dense stellato-pubescentibus, pilis superficiem haud occultantibus; nervis primariis utrinque 9–11, utrinque perspicuis, subtus elevatis, curvatis, ad marginem arcuato-anastomosanti-bus, reticulis primariis subparallelis; petiolo 1.5–2.5 cm. longo, indumento ut in ramulis junioribus; inflorescentiis multifloris, cymosis, pedunculatis, 8–12 cm. longis dense villosis, pilis stellatis et depauperato plumosis intermixtis; calycibus obovoideis, subtruncatis vel obscurissime 5-dentatis, extus dense pallide pubescentibus, circiter 1 mm. longis; corolla 3 mm. longa,

sursum ampliata, tubo 2 mm. longo, lobis 4, suborbiculari-ovatis, late rotundatis, 1 mm. longis; staminibus 4, filamentis gracilibus, glabris, longe exsertis, 6 mm. longis; antheris ellipsoideis, 1 mm. longis; ovario globoso, glabro, stylo quam filamenti paullo longiore.

INDO-CHINA, Tonkin, Sontoy Province, Mount Bavi, *Pételot 2608*, July 2, 1940, in humid forests, altitude about 600 m.

By Dr. Dop's key this falls with *Callicarpa arborea* Roxb. as interpreted by him, yet it differs from Roxburgh's species in so many striking characters, and for that matter all other Chinese and Indo-Malaysian species known to me, that I am constrained to describe it as new. The very dense indumentum on the branchlets, parts of the inflorescences, petioles, and on the midribs and lateral nerves on both surfaces of the leaves is made up of short crowded stellate hairs and much longer subplumose ones, the latter often 3 mm. in length, and usually with very few, short, lateral branchlets, these lateral branchlets scarcely stellate in arrangement. The shorter stellate hairs on the parenchyma on the lower surface by no means conceal the latter, the more or less scattered stellate hairs on other than the midrib and lateral nerves scarcely touching each other.

#### RUBIACEAE

**Hedyotis effusa** Hance, Jour. Bot. **17**: 11. 1879.

INDO-CHINA, Laos, Cammon Province, Pak Hin Boum, *Pételot 2508*, Dec. 1930. Southeastern China.

The material closely approximates a series of Kwangtung specimens representing Hance's species. I am unable to refer it to any of the Indo-Chinese species described by Pitard.

**Hedyotis tetrangularis** (Korth.) Walp. Ann. **2**: 769. 1852; Valeton, Bot. Jahrb. **44**: 543. 1912, *descr. ampl.*; Merr. & Metc. Lingnan Sci. Jour. **16**: 400. 1937.

*Diplophragma tetrangulare* Korth. Nederl. Kruidk. Arch. **2**: 149. 1851.

*Hedyotis Parryi* Hance, Ann. Sci. Nat. IV. Bot. **18**: 221. 1862.

*Oldenlandia tetrangularis* Merr. Pap. Michigan Acad. **23**: 193. (1937) 1938.

*Oldenlandia subdivaricata* Drake, Jour. de Bot. **9**: 211. 1895; Pitard, in Lecomte, Fl. Gén. Indo-Chine **3**: 124. 1922, *syn. nov.*

*Hedyotis subdivaricata* Drake ex Pitard, l.c. in *syn.*

INDO-CHINA, Tonkin, Phuc Yen Province, Phu Lo and Phu Da Phuc, *Pételot 2492, 2497*, May and June 1936, in dry fallow rice paddies. Kwangtung and Hainan to Borneo and Sumatra.

I am unable to distinguish Drake's species from the forms described earlier by Korthals from Borneo and by Hance from Kwangtung Province, China.

**Hedyotis nigrescens** sp. nov. § *Diplophragma*.

Frutex, ramis teretibus, glabris, pallidis, ramulis ultimis subteretibus vel obscure 4-angulatis, subdense brevissime pubescentibus; foliis numerosis, oblongis vel oblongo-lanceolatis, 2-4 cm. longis, 5-10 mm. latis, breviter subapiculato-acuminatis, basi acutis vel subobtusis, sessilibus vel brevissime (1 mm.) petiolatis, chartaceis, supra in sicco nigrescentibus, glabris vel primo ad costam deorsum leviter pubescentibus, subtus paullo pallidioribus, brunneis, ad costam nervosque breviter pubescentibus, nervis primariis utrinque circiter 5, gracilibus, haud perspicuis, curvato-adscendentibus, ob-

scure arcuato-anastomosantibus, reticulis subobsoletis; stipulis laciniatis, extus leviter pubescentibus, 3–4 mm. longis, laciniis 5–10, gracilibus, interioribus longioribus, ad 2–2.5 mm. longis, exterioribus gradatim brevioribus; floribus 4-meris, fasciculatis, fasciculis terminalibus, haud pedunculatis, 6–10 mm. diametro, plerumque paucifloris; pedicellis glabris, ad 1 mm. longis; bracteolis 2 mm. longis, fimbriatis, membranaceis; floribus extus (sepalis exceptis) glabris, sepalis 4, lanceolatis, acuminatis, 2 mm. longis, quam capsulis longioribus, obscure brevissime hispidis; corollae tubo cylindrico, 2.5 mm. longo, 1 mm. diametro, intus sursum barbato, lobis 4, linearis vel anguste linearis-oblongis, recurvatis, 2 mm. longis, 0.5 mm. latis; filamentis brevibus, glabris, antheris circiter 1 mm. longis; stylo (basi apiceque exceptis) breviter pubescente, gracili, 4.5 mm. longo; stigmatibus 2, anguste oblongis, 1 mm. longis; capsulis glabris, oboviedo-globosis, ad 1.5 mm. longis, sepalis quam capsulis longioribus persistentibus, apicibus intra lobis haud protrusis, tarde loculicide dehiscentibus; seminibus numerosis.

INDO-CHINA, Tonkin, Langson Province, Thanh Moi, Pételet 2521, May 1938, in shrubby savannas.

A species with the general habit and much the appearance of the Philippine *Hedyotis Bartlingii* Merr., but with its persistent sepals distinctly longer than the glabrous, not pubescent, capsules.

***Ixora cephalophora*, sp. nov. § *Euixora, Chlamydanthus*.**

Frutex glaber, ramulis ultimis circiter 3 mm. diametro, internodiis 5–7 cm. longis; foliis anguste oblongis vel oblongo-oblanceolatis, chartaceis, apice obtusis vel breviter late obtuseque acuminatis, basi acutis, 20–25 cm. longis, 4–6.5 cm. latis, in sicco supra subolivaceis, nitidis, subtus paullo pallidioribus; nervis primariis utrinque circiter 10, gracilibus, curvatis, anastomosantibus, subtus elevatis, reticulis laxis; petiolo 1–2 cm. longo; stipulis suborbiculari-ovatis, circiter 5 mm. diametro, abrupte graciliter apiculatis, apiculis 3 mm. longis; inflorescentiis terminalibus, myrianthis, sessilibus, floribus densissime confertis, capitulum densum formantibus, circiter 7 cm. longis et 9 cm. latis, ramis primariis vix 1 cm. longis; floribus albidis, densissime confertis, in triadibus dispositis, lateralibus brevissime (1–2 mm.) pedicellatis, medianis sessilibus; bracteolis submembranaceis, lanceolatis, acuminatis, 2.5–4 mm. longis, 1.5 mm. latis, quam calycis tubo multo longioribus; calycis tubo circiter 2 mm. longo, lobis submembranaceis, oblongo-lanceolatis vel lanceolatis, acuminatis, 4–5 mm. longis, 2 mm. latis; corollae tubo gracili, 2 cm. longo, lobis 4, ellipticis, intus glabris, rotundatis, 6 mm. longis et 4 mm. latis; filamentis brevissimis, antheris anguste oblongis, 3 mm. longis; stylo gracili glabro.

INDO-CHINA, Tonkin, Langson Province, Thanh Moi, Pételet 2502, April 28, 1938, a shrub with white flowers in shrubby savannas.

A strongly marked species, characterized by its dense, terminal, sessile, globose heads of very numerous flowers, the primary branches of the inflorescence being greatly shortened, the branches and very short branchlets densely crowded, the lanceolate bracteoles and sepals much longer than the calyx tubes. Its alliance is clearly with *Ixora multibracteata* Pearson of Burma, Siam, the Malay Peninsula, and Sumatra. Judging from Bremekamp's description, *Ixora capituliflora* Bremek. Jour. Bot. 75: 297. 1937, is also closely allied to this Indo-Chinese form.

***Ixora flexilis*** Pierre ex Pitard in Lecomte, Fl. Gén. Indo-Chine **3**: 315. 1924, *in syn.*  
*Ixora diversifolia* Wall. var. *flexilis* Pitard, l.c. descr.

INDO-CHINE, Tonkin, Bac Giang Province, Pho Vi, Pételot 2490, June 3, 1936, in humid forests.

As *Ixora diversifolia* R. Br. is interpreted by Bremekamp, Jour. Bot. **75**: 321. 1937, and as he in general limits species, I see no reason why the Indo-Chinese form with very short pubescent inflorescences and slightly pubescent corollas, the form figured by Pierre in his lithographed dissections of *Ixora flexilis* Pierre, should be placed with *Ixora diversifolia* R. Br. as a variety as Pitard did.

***Myrioneuron effusum*** (Pitard) comb. nov.

*Myrioneuron nutans* Wall. var. *effusa* Pitard in Lecomte Fl. Gén. Indo-Chine **3**: 192. 1923.

A second collection of this species from the type locality, Mount Bavi, Pételot 2520, in flower, seems to justify the proposal of this form as a species; Balansa's specimen, on which Pitard's ample description was based, was in fruit. The flowers are about 14 mm. long. Calyx tube about 3 mm. long, the lobes lanceolate, long and slenderly acuminate, at anthesis 6–7 mm. long, in young fruit 1 cm. long, more or less pubescent outside. Corolla tube cylindric, 1 cm. long, the lobes oblong-ovate, acute, 2 mm. long, these and the tube short-pubescent outside, the tube villous within. Filaments glabrous, 1.5 mm. long, the anthers linear-lanceolate, 3 mm. long, their tips slightly exserted. Style arm 4 mm. long.

***Psychotria siamica*** (Craib) Hutch. in Sargent, Pl. Wils. **3**: 415. 1916.

*Cephaelis siamica* Craib, Kew Bull. **1911**: 395. 1911.

*Psychotria Thorelii* Pitard in Lecomte, Fl. Gén. Indo-Chine **3**: 364. 1934, *syn. nov.*

Pitard's type was from Paklai, Laos, Indo-China, a specimen collected by Thorel that I have not seen. This strongly marked species is clearly represented by Pételot 2516 from Langson Province, and 5713 from Thai Nguyen Province, Tonkin. I can detect no constant differences between *Psychotria Thorelii* Pitard and the earlier *P. siamica* (Craib) Hutch. The species extends from Siam to Indo-China, Yunnan, and Kwangsi.

***Spiradiclis caespitosa*** Blume, Bijdr. 795. 1826; Kurz, Jour. As. Soc. Bengal **46**(2): 129. 1877; Hook. f. Fl. Brit. Ind. **3**: 76. 1880.

INDO-CHINA, Tonkin, Massif de Pia Quac, near Nam Kep, Pételot 713, July 1922, on schistose cliffs, alt. 700 m. Java and Martaban.

This specimen agrees with the inadequate descriptions of Blume's species and probably represents it; the type was from Java and I have seen no specimens representing the species. Hooker f. admits it on the basis of Kurz's Martaban record, but no species of the genus has been recorded from either Siam or the Malay Peninsula.

***Spiradiclis leptobotrya*** (Drake) Pitard, var. ***longiflora*** var. nov.

A typo (haud viso) differt floribus distinete longioribus, circiter 5 mm. longis, corollae tubo 4 mm. longo, lobis 1.3 mm. longis, petiolis paullo longioribus, (ad 2.5–3 cm.) ramulis compressis vel sulcatis, haud 4-angulatis.

INDO-CHINA, Tonkin, Hoa Binh Province, Muong Thon, route from Hanoi to Hoa Binh, Pételot 6405, Oct. 1937, in open forests.

Pitard's ample and detailed description applies rather well to the cited specimen except in the characters indicated. The type is *Balansa* 2635 from Cho-bo, Tonkin. The corolla lobes are described as 0.3–0.4 mm. and the tube as 1.5–2 mm. long, the form I have indicated as var. *longiflora* having flowers twice as long. Pitard's figure, 9, 7–9, includes an illustration of a mature flower, and he describes and illustrates the corolla as pubescent outside, although in Drake's original description it is indicated as glabrous. The species is known only from the original collection.

#### CAPRIFOLIACEAE

**Viburnum erubescens** Wall. var. **neurophyllum** Hand.-Maz. Symb. Sin. **7**: 1033. 1936.

INDO-CHINA, Tonkin, Bac Giang Province, Lang Met, *Pételot* 1814, May 1925. The variety in Yunnan, the species extending from the Himalayan region to Ceylon, Yunnan, and Szechuan.

#### VALERIANACEAE

**Valeriana Jatamansi** Jones, As. Res. **2**: 405, 416. 1790; Hand.-Maz. Act. Hort. Gothob. **9**: 171. 1934.

INDO-CHINA, Tonkin, Chapa, Massif de Song ta Van, *Pételot* 2096, April 1936, in open forests, alt. 1900 m. Himalayan region to Yunnan, Szechuan, and Hupeh.

When first studied, this number and *Pételot* 5934, described below as var. *glabra*, were indicated as representing a new species. I am now convinced that it cannot be separated from the rather widely distributed *Valeriana Jatamansi* Jones, synonyms of which are *V. spica* Vahl (1806), *V. Wallichii* DC. (1832), *V. Harmsii* Graebn. (1898), and *V. Mairei* Briq. (1914). The indumentum on this specimen is like that on typical Asiatic material of Jones' species, but the leaves are rather distinctly undulate-crenate or even crenate-dentate.

Var. **glabra**, var. nov.

A typo differt partibus omnibus glaberrimis, foliis irregulariter sat grosse crenato-dentatis.

INDO-CHINA, Tonkin, Chapa, Lo Qui Ho to Ta Pinh, *Pételot* 5934, April 1936, along the trail near a cascade, alt. 1700 m.

The only species hitherto recorded from Indo-China is the very different *Valeriana Hardwickii* Wall.

#### CUCURBITACEAE

**Alsomitra integrifoliola** (Cogn.) Hayata, Jour. Col. Sci. Univ. Tokyo **30**(1): 121. 1911; Ic. Pl. Formos. **1**: t. 38–39. 1911, **2**: 40. 1912; Cogn. Pflanzenr. **66** (IV. 275<sup>1</sup>): 17. 1916.

*Gynostemma integrifoliolum* Cogn. in DC. Monog. Phan. **3**: 916. 1881.

*Gynostemma elongatum* Merr. Philip. Jour. Sci. **3**: Bot. 267. 1908.

*Hemsleya elongata* Cogn. Pflanzenr. **66**(IV. 275<sup>1</sup>): 26. 1916.

*Alsomitra tonkinensis* Gagnep. Bull. Mus. Hist. Nat. Paris **24**: 372. 1918; Lecomte, Fl. Gén. Indo-Chine **2**: 1088. f. 126. 1921.

INDO-CHINA, Tonkin, Ninh Binh Province, Cho Ganh, *Pételot* 1198, November 1923. Philippines, Formosa, and Hainan.

Cogniaux erroneously excluded *Gymnostemma integrifoliolum* Cogn. as a synonym of *Alsomitra integrifoliola* Hayata. In Philip. Jour. Sci. **7**: Bot.

353. 1912, I called attention to the fact that *Gynostemma elongatum* Merr. is a synonym of *Alsomitra integrifoliola* Hayata and that the "fruits" of *Gynostemma integrifoliolum* Cogn. as described by Cogniaux were merely globose galls infested with insect larvae. Although I have seen no authentic material representing *Alsomitra tonkinensis* Gagnep., I do not see how this can be distinguished from *A. integrifoliola* (Cogn.) Hayata from the published data appertaining to Gagnepain's species.

#### COMPOSITAE

**Cirsium involucratum** DC. Prodr. 7: 639. 1837.

*Cnicus involucratus* Wall. ex DC. l.c. in syn.; Clarke in Hook. f. Fl. Brit. Ind. 3: 362. 1881.

INDO-CHINA, Tonkin, Chapa, *Pételot* 6289, July 1935, a coarse herb 2-2.5 m. high, alt. 1500 m. Himalayan region to Yunnan, if I have correctly determined *Henry* 9083 and *Forrest* 15153.

Gagnepain admits three species of *Cnicus* as occurring in Indo-China, *C. japonicus* Max., *C. Leducii* Franch., and *C. chinensis* Maxim., this record adding a fourth species to the general group.

**Eupatorium odoratum** Linn. Syst. ed. 10. 1205. 1759; Gagnep. in Lecomte, Fl. Gén. Indo-Chine 3: 506. 1924; Kerr in Craib, Fl. Siam. Enum. 2: 249. 1936.

This tropical American species was included by Gagnepain on the basis of Siam collections, but he had no material from Indo-China. Kerr, however, speaks of it as now widely distributed in Assam, Burma, Siam, the Malay Peninsula, and French Indo-China. It has recently been collected along roads at Co Dong, Sontoy Province, Tonkin, and the collector mentions it as of probably recent introduction and as rapidly spreading, *Pételot* 2063, December 1935.

**Youngia cineripappa** (Babc.) Babc. & Stebb. Gen. Youngia 60. f. 13. 1937.  
(Carnegie Inst. Washington Publ. 484).

*Crepis cineripappa* Babc. Univ. Calif. Publ. Bot. 14: 325. 1928.

*Crepis primulifolia* Hook. f. Gen. Pl. 2(1): 514. 1873, *nomen nudum*.

INDO-CHINA, Tonkin, Chapa, *Pételot* 2060 (det. Babcock) 6541, April 1925 and 1935, alt. 1500 m. Assam, Khasia, Yunnan, Szechuan, and probably Kweichow.

In recognizing *Youngia* as a generic segregate from *Crepis*, Babcock and Stebbins cite *Pételot* 1762 from Chapa as representing this species. *Crepis japonica* (Thunb.) Benth., a widely distributed weed also occurring in Indo-China (Fl. Gén. Indo-Chine 3: 642. 1924), becomes *Youngia japonica* (Thunb.) DC.; Babc. & Stebb. op. cit. 94. f. 28. 1937.

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